

ccj

COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR TRUCK AND BUS FLEET OPERATORS

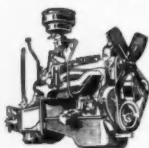


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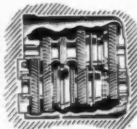
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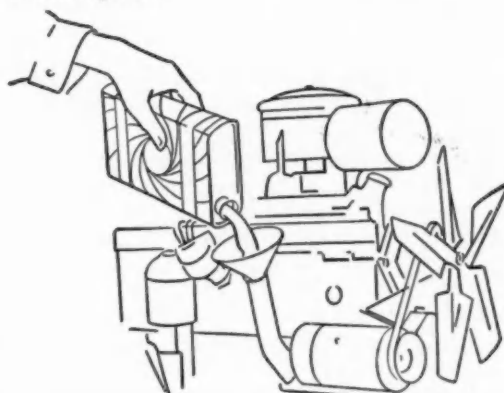
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What is Good Fleet Management?

Ted Preble, of Tide Water Oil Co., outlines the duties, responsibilities and attributes of a good fleet manager . . . lends stature to the position . . . provides some data that top management should see. Page 51.

Conversion Problems with LP Gas

Sorensen Mill Rendering Plant in the midwest provides concrete suggestions for converting a GMC engine to use of propane. This procedure, arrived at through trial and error methods, will save you headaches in conversion. See page 52.

Madison Buses Get Better Brakes

Wisconsin bus fleet develops a series of brake maintenance tips that improve safety, up lining mileage and speed work. Shim kits for brake block fitting, wear measurement gages, improved drum grinding techniques can be used by other fleets. See page 54.

TESTING—Key to Driver Selection

Don Buck, the Army's noted vehicle safety expert, should now be familiar to all CCJ readers. The current article, fifth in a continuing series, wraps up specific comment on the six most vital steps to driver selection. On the road test alone he has three subdivisions, with special emphasis on proper evaluation. See page 58.

Cut Weight—Up Payload—Make More Money

SAE Transportation Meeting produces several papers on weight-saving suggestions. Nev Bauman shows how use of aluminum, improved chassis design can provide added revenue. ALCOA representatives point out weight-saving possibilities in truck and trailer building. Page 62. A follow-up in service problems with magnesium will be found on page 64.

Pine Lake Tests Show How to Stop a Truck

National Safety Council tests on Pine Lake show that a tandem axle tractor reaches a jackknife angle of 15 deg 10 per cent faster than a single axle tractor . . . that shorter stopping distances can be realized with a method of fanning brakes . . . that an automatic limiting device may be necessary to eliminate wheel locking. See page 66.



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CONFERENCE C O R N E R

PRESENTING THE EXPERTS' VIEWPOINTS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Block Grinding Is Practical

By A. B. Harding
Lempco Products Co.

NO ONE seems to know why the comments one hears about grinding cylinder heads and blocks are as contradictory as day and night.

Take the case of John Hillgate, truck maintenance superintendent of a large midwestern freight transport, who says that under no circumstances does he re-surface engine blocks—the risk of a mismatched block from improper grinding is so great that he prefers to discard a block if warpage is present. John Hillgate is a fictitious name, but the man and the company he represents are real, and points up the differences that often occur in engine rebuilding methods. Hillgate will also tell you that his views are not shared by others. Just a few miles from Hillgate's shop is another man who operates the authorized service station for one of the nation's largest makers of trucks, where the viewpoint is somewhat different. Here every block is ground when engine is rebuilt. "Obviously," says the latter, "if a cylinder head needs regrinding, the block should be examined carefully too, for the same forces that distort the head have some effect on the block."

It is well to remember that the block and head do not match perfectly even when new. That is why manufacturers use a gasket to seal the small irregularities between the block and the head, to contain the explosive force within the cylinder.

Heat, stress, strain and abuse add trouble that is aided and abetted by carelessness in service and in minor repairs. Occasionally, when a cylinder head is replaced, the studs are tightened with irregular pressure and in improper rotation and usually by mechanics who know better.

After repeated heating and cooling the block adjusts itself to these inequalities. For example, the block may stretch around the stud, causing a high spot on the surface of the block. No immediate operational fault will be noticed, but sooner or later valve trouble will begin to develop as seepage of water into combustion

chambers pits valves and burns them out prematurely.

This same result has even greater incidence among blocks whose studs are widely spaced. The areas of pressure are not evenly distributed over the surface, thus giving rise to a tendency towards distortion.

The loosening of cylinder head bolts while engine is still hot has a tendency to distort the head. The same is true for careless refilling of the cooling system while engine is still hot. Any sudden change in temperature has a tendency to distort the shape of a block or head, hence has to be done carefully. Since no physical evidence of this distortion is seen, the danger is always minimized.

These are some of the causes of warpage. Others are not so well known, but sufficient evidence is available that four to five blocks out of every hundred need a resurfacing job for maximum performance.

Reluctance to grind blocks can readily be traced to the difficulty in detecting heat distortion and to the lack of adequate grinding facilities for truing up these surfaces. Manufacturers of engines complicate matters further. There is a wide variation in the amount of stock that can be removed from various types of heads and blocks without disturbing the compression ratios or cooling properties. Some insist on discarding warped cylinder heads or blocks. Others place their approval on grinding them.

The effects of a good grinding job are generally conceded. Better engine performance and longer road service can be expected. Fortunately, new and improved grinding equipment will now enable fleet operators to specify block grinding without the fear that the job will be less than satisfactory.

Grinders are available that literally flood the work with coolant, a factor that is very important in grinding chrome nickel blocks and cylinders heads. This alloy is hard and tough with a tendency to build up terrific heat when ground. Thus, by flooding the work with coolant, any tendency towards distortion is eliminated. The operator does not have the discouraging experience of checking out a job only to discover that when

(TURN TO PAGE 120, PLEASE)

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SPARK PLUGS

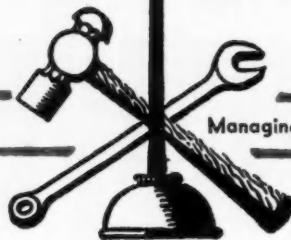
Ignition Engineered



At Your Service

By M. K. SIMKINS

Managing Editor, Commercial Car Journal



Quick Charge Tow Truck

Many service trucks are now equipped with a Leece-Neville alternator system which is said to expedite quick charge for batteries on stalled vehicles.

Cables are installed with ends permanently attached to the tow truck battery. Alligator clips with rubber shields are attached to the other ends so that the quick charge rig is always ready.

In this way the cables can be attached to the low battery of the truck and a quick charge can be given in ten minutes, with the alternator producing about 80 amps.

Resistor Type Spark Plugs

When you install resistor type spark plugs, you do not have to use heavy-duty or high output coils. The resistor does not increase required voltage since no current flows in the secondary circuit prior to the ionization of the spark plug gap. Voltage required by a standard and resistor plug is dependent primarily upon gap setting, the condition of the electrodes and the operating temperature. For most installations Auto-Lite recommends a setting of .035. So be sure to check type of plugs used when resetting gaps.

Breaker Points Should be Clean

Even new contact points should be cleaned after they have been installed. Otherwise they will burn. Carbon tetrachloride can be used. A clean rag may do just as well. Emery cloth, sand paper or certain abrasive materials will leave particles on the point surfaces that will become imbedded in the tungsten, resulting in hardening and burning.

Raise Cylinder Wall Temp.

Studies show that cylinder wall wear at 10 deg F may be as much as .010 in. per 1000 miles—or about 100 times faster than that which takes place at 200 deg F. This being true, then many fleets are going to use up a lot of metal this winter, simply because they have not taken the trouble to raise cylinder wall temperature to 175 to 190 deg.

At the risk of boring you with basic information, let us review some of the simple steps that will aid in raising water jacket temperature.

You can install heat exchangers, insulate valve covers and crankcase pans, use oil heaters and modify oil lines as was done by Mr. Ruth (CCJ Oct., page 54). There are still other means of raising temperature to a point where sludge and wear can be reduced.

Automatic radiator shutters, for example, are effective—offer certain advantages over low opening thermostats. With this unit complete water circulation is maintained at all times. Temperature can be controlled within 6 to 8 degrees throughout the system, and with the greatest volume of water in the radiator. Opening and closing of the shutters is automatic so that chance of driver laxity in control is eliminated.

More Noise on Mufflers

A recent survey among fleet operators and truck vendors reveals some interesting data on why trucks make as much noise as they do. The study, conducted by Automotive Transport Trades Council, sponsors of the Transport Vehicle Show in New York, was made among operators and vendors in 20 states. Considerable emphasis was placed on diesel operators since the noise problem is of course high among this group.

The survey asked each recipient what in his opinion was the most pronounced cause of undue noise in truck usage. The results produced the following table of opinions:

	Exhibitionist Driver	Improper Replacement	Neglected Maintenance	Inadequate Factory Equipment
FLEETS	20%	10%	48%	22%
VENDORS	11	37	30	22
AVERAGE	15½	23½	39	22

The relationship between vendor and user opinions is interesting. As might be expected the vendors placed much higher emphasis on improper unit replacement. But the operators themselves admitted to proportionately higher emphasis on exhibitionist driving and neglected maintenance. Both were agreed on the inadequacy of original factory equipment.

Among both operators and vendors there is definite indication that each is well aware of the problems involved and that something more than a mere academic study is needed.

Combustion Chamber Deposits

A broader understanding of the causes of combustion chamber deposits—together with a new method of study by which this long-standing problem may eventually be solved—were discussed by three technologists of the Ethyl Corp. at SAE's National Fuels and Lubricants Meeting, in Tulsa. Authors H. J. Gibson, C. A. Hall, and D. A. Hirschler of Ethyl's Research and

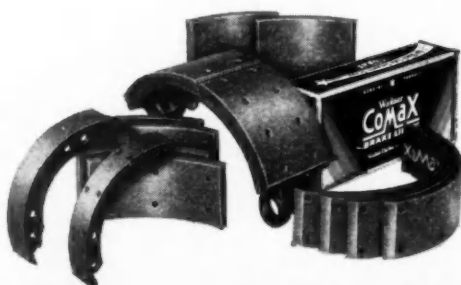
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Continued from Page 10

Engineering Department, pointed out that the volatility of the lubricating oil, as well as the carbon-hydrogen ratio of the gasoline, are important factors in an understanding of the problem.

Organic materials formed from both the fuel and the oil are of major importance in the formation of combustion chamber deposits. The volatility of both the fuel and the oil are more important than their hydrocarbon composition in this respect, it was reported. Removal of the heavy ends from lubricating oils tends to lessen requirement increase, although the size of this effect is related to the type of fuel used in conjunction with the oil. Lowering the endpoint of the fuel also tends to lessen requirement increase, it was pointed out.

In one phase of the investigation, it was found that the carbon-hydrogen ratio of leaded pure hydrocarbons selected for study influences the amount and composition of the deposit formed. There appears to be a mutual scavenging action between fuel-formed carbon and lead compounds, the report declared, which tends to remove both types of materials from the combustion chamber. As the carbon-hydrogen ratio of the fuel is increased, the mutual scavenging action also increases.

As to lubricating oil, the authors said that the removal of heavy ends from lubricating oils tends to lessen the octane requirement increase. "The magnitude of this effect," they declared, "is dependent on the contribution of the fuel to the organic portion of the deposit. Variations in oil hydrocarbon composition appear to be less important than changes in oil volatility."

Engine operating conditions also have a major influence on deposit effects. The increase in requirement "can be reduced by high-output operation during deposit accumulation or following light-duty service. Increasing the jacket-coolant temperature reduces deposit effects, although the net effect is to raise the requirement level."

Finally, the design of the combustion chamber and the location of deposits within the chamber appear to influence the increase in requirement. A small ratio of combustion chamber surface area to displacement volume, they pointed out, appears to be desirable.

12-Volt Systems & Plugs

Impending wide-spread adoption, by automobile manufacturers, of a 12-volt electrical and ignition system raises the question of its influence on spark plugs, particularly whether the type of plug required for a 12-volt system differs from that used on the present 6-volt system. According to AC Spark Plug engineers, the answer is no, since the same plugs can be used interchangeably on the two systems. The new engines fitted with 12-volt systems may require colder plugs for their operation but if so, it is due to increased engine output and not to increased battery voltage.

IHC Adopts Concentric Carburetor

Holley is now supplying the Model 885-FFG concentric carburetor-governor combination for original equipment on International Harvester "L" series trucks using the RD-406 and RD-450 engines. This carburetor is similar to Holley models used as original equipment on the 1949-51 Mercury and Lincoln automobiles.

It is also original equipment on the Ford F7 and F8 trucks, the Reo Eager Beaver, and military GMC trucks.

IHC Master Cylinder

On L-130 LHD, LB-140 with hydrovac booster brakes a new 1 1/4-in. diameter master cylinder is now being used replacing the old 1 1/8-in. diameter master cylinder to provide a larger capacity master cylinder. The new master cylinders are not interchangeable unless parts listed in the new IH Parts column are used. Therefore, both the new assemblies and component parts will be provided for service as ordered.

Studebaker Matches Units

Generators, ammeters, and current-voltage regulators are designed to be used in matched sets, i. e., it is never desirable to replace a generator with just any generator that might at one time or another have been used in a particular model or truck. It is essential to proper electrical system operation and long life of all parts in the electrical system that the replacement generator be matched to the type and model of current-voltage regulator and ammeter with which the generator must work on the truck.

Low Compression Pressures on Ford

Whenever a complaint of power loss (after 800-1000 miles of operation) is encountered on 215 cu in., 279 cu in., and 317 cu in. engines, and it can be traced to low compression pressures, be sure to check the run-out of the valves and seats. The valve face runout should not exceed 0.002 in. and the seat runout should not exceed 0.003 in. Reface any valves or valve seats that are not within these specifications.

The specified compression pressures are 130 lb \pm 10 lb for the 215 cu in. engine, and 115 lb \pm 10 lb for the 279 and 317 cu in. engines. When the compression pressures are considerably below the minimum limits, be sure to check the valves and seats as outlined above.

Vehicle Hoist Interference —1952 F-Series Ford Trucks

Direct acting rear shock absorbers have been released as optional equipment for F4, F5, F6, F7 and F8 trucks. Difficulty may be experienced when lifting trucks so equipped due to interference between the shock absorbers axle bracket and the rear saddle of certain type hoists. If the rear saddle of such hoists is adjusted to contact the springs, the rear axle will be tilted when the vehicle is raised. If the saddle is placed inside the springs, the vehicle weight will rest on the shock absorber rear axle brackets, thus causing breakage. Before lifting a truck equipped with direct acting shock absorbers, check the fit and position of the rear saddle of the hoist. If it is evident that interference exists between the shock absorber axle bracket and the rear saddle of the hoist, check with the manufacturer of the hoist. Most hoist manufacturers provide an adapter assembly to be used in such cases.

New TRAILMOBILE Model "EP" Offers...

EXTRA LOAD-CARRYING MONEY-SAVING FEATURES!



Model "EP"—Exterior Post closed top tandem

RUGGED NEW "EXTERIOR POST" DESIGN CUTS MAINTENANCE COST—INCREASES PAYLOAD!

Lightweight, extra inside width (91½ inches) and ease of repair and maintenance are standout features of the new Trailmobile Exterior Post Trailer. Formed aluminum panels, posts, roof quarter panels, doors and landing gear, put this model in the lightweight class.

Expert engineering and careful testing on the exclusive Trailmobile Stress Meter guarantee its load carrying ability.

Simplified construction is assurance of minimum maintenance and easy repairs.

The Exterior Post Model is also available in an Open Top Model, with all the advantage of greater payload with reduced maintenance.

Ask your friendly Trailmobile Branch for details and a quotation on the new Exterior Post Trailmobile.

The Trend
is to **TRAILMOBILE**

TRAILMOBILE INC.

Subsidiary of Pullman Incorporated

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Friendly Sales and Service from Coast to Coast



THE OPEN TOP MODEL "OEP" Trailmobile features an unusually strong and sturdy top rail. The rear header is hinged at both ends to swing in either direction, or it can be removed entirely.

ROOF BOWS are 1" steel pipe with a 10½" crown. The ridge rope is held taut by a spring coil at the front.

TARP TIE HOOKS are fastened to the body post and are self-locking, no knots to tie. Tie rails are provided on the rear doors. Another in the famous line of Trailmobile "Easy Rolling Trailers".

The OVERLOAD

E D I T O R I A L C O M M E N T

A Merry and Thoughtful Christmas to All!

REGULAR readers of this feature know that all of our discussions are based on the hope that in some small way they will contribute to the betterment of highway transportation. Some of the topics deal with the relationship between our industry and others; some concern problems within the industry itself. This is in the latter category.

At year's end there could be no better time to throw the spotlight briefly on a situation within the industry that is not good. It concerns the widening split between different segments . . . the various types of carriers.

Those who attended the ATA convention in New York last October or who read the account in CCJ last month, will remember the remarks of Dick Jelsma (Senate Interstate & Foreign Commerce Committee) and Ronald Monroe (of DTA). Both are men of character and both, we believe, are without prejudice toward the truck industry, yet both are in strategic positions from which to observe the relative efficiency of such pressure groups (ugly but accurate words) as the railroads, the airlines, the water carriers and the truckers. Both in effect had this to say: "It's time to stop washing your dirty linen in public."

We do not think it necessary to spell out the meaning of this combined advice, but it may be helpful to cite from our own research a few specific examples. Last Spring, during the great burst of legislative proposals that ground through the Senate hopper, were three bills each with special venom built in.

One (S. 2362) would virtually wipe out any over-the-road *private* carriage. Another (S. 2361) would greatly curtail the operations of *contract* carriers. The third (S. 2358) would severely restrict the services of *irregular* common carriers. All were backed by regular route common carriers.

In each case competent legislative experts, whose business it is to know the workings of a Senatorial

mind (Republican or Democrat), advised against the bills; said there was no chance of passage. Yet pressure continued; the bills were introduced; each produced a justifiable barrage of rebuttals from opposing interests, and *none* came out of committee.

All that was left was a heavy fog of confusion and a strong feeling on Capitol Hill that the truckers, alone among transportation interests, didn't know what they were after. Meanwhile, similar situations have arisen at DTA, the ICC and other agencies where common transportation problems must be aired.

Fortunately the top-level staff of American Trucking Associations is well aware of the problem. Cognizant of the fact that ATA alone serves all forms of highway transportation they know the value of a united front. Contrary-wise, they also know the inherent dangers of trying to muzzle any of the widely separated elements that make up the world's greatest business enterprise.

So it is not to the ATA officers and staff that this message is primarily directed. Rather it is an appeal to the carriers themselves, in all vocations, whose interests (as members or not) are so well served by the association. They alone must decide whether their well-being is served best by blatant insistence on their own self-interest . . . or by a give-and-take among themselves and then a united front to the rest of the world.

This perhaps may seem like a peculiar build-up to our annual Christmas greetings. But the message is here just the same. For what better time could there be than the celebration of Christ's birthday to plan our actions for the challenging year ahead. From all of us to all of you—best wishes!

Bart Rawson
Editor

WASHINGTON RUNAROUND

by KARL RANNELLS Washington Correspondent

No Rush for Expected Changes

The big vote which turned out for Eisenhower is generally accepted in Washington as a mandate for complete changeover from current and past governmental policies. This would mean lower taxes, fewer controls over business, and less interference between management and labor.

Seasoned observers say most likely guesses are pricing and materials controls will be relaxed at a somewhat faster rate and will expire on schedule. This is April 30 for price-wage controls and June 30 for materials. They expect priorities power to be retained for defense orders. But strong industry and trade opposition will be put up against any proposals to extend price controls, even on a standby basis.

Tax laws are expected to be rewritten substantially. But this is not seen as happening until after end of the fiscal year on June 30. Of importance to the trucking industry, is the belief in many quarters that the excess profits tax will be allowed to die as of June 30. Opposition is strong against an extension.

ICC Changes Due

Changes are due at the Interstate Commerce Commission. Soon there will be two appointments open to the commission as terms expire. Both incumbents are past retirement age—a bar to reappointment. Successors must be Republican in politics.

In addition, a general reorganization of the ICC is in the cards. This has been under study over the past several months by a group of management engineers. Their report and recommendations as to how the commission can be streamlined and made more efficient is due to be handed over to the Senate Interstate Commerce committee later this month.

There has been no inkling as to what the report will recommend. But there has been some comment to the effect that the Bureau of Motor Carriers is seen as doing a good job and that a strengthening of the bureau will be advised.

Legislation Hinges on Senate Committee

All pending legislation dies with the out-going Congress. This means it must be re-introduced to the newly elected legislature. Virtually all held-over legislation affecting transportation matters and the Interstate Commerce Commission is in shape to be quickly re-introduced on opening of the new session. Just how many of the more than two-score bills brought before the Senate last year will be actively considered this year hinges to a great extent upon decision of the Senate Interstate Commerce Committee which will be reorganized as a result of Republican control.

Best information is there will be seven Republicans, including a new chairman, and six Democrats. It is also expected that Senator Charles W. Tobey of N. H. will become the new chairman in place of Senator Edwin C. Johnson of Colo. who will become the ranking Democratic member.

Assuming that Warren G. Magnusen of Washington, Lyndon Johnson of Texas, Lester C. Hunt of Wyoming (Democrats), Homer E. Capehart of Indiana, John W. Bricker of Ohio, and John J. Williams of Delaware (Republicans) choose to retain their membership, there will be three Republican and two Democratic vacancies to be filled.

More Freight, More Trucks

Surveys by the Defense Transport Administration indicate a considerable increase in the volume of motor freight traffic during first half of 1953. This is supported by American Trucking Association opinion that highway freight volume is definitely on the upswing. Less than 10 per cent of motor carriers contacted by DTA expect any decrease in business.

DTA surveys covered nearly 3600 individual operators who maintain a combined fleet of more than 56,000 trucks and more than 112,000 truck trailers. On the basis of information obtained, DTA estimates that replacement needs alone now stand at close to 7 per cent, or roughly, 4200 trucks, 7500 tractors, and 40,000 trailers.

DTA has already put in a claim to National Production Authority for sufficient steel, copper and aluminum to permit manufacturers to turn out at least 325,000 trucks during the second quarter—39,000 heavies, 87,750 mediums and 198,250 lights. It is also asking for enough materials to produce some 110,000 bodies, including 500 for transit buses and 14,500 for truck trailers.

Inland Waterways, Pipelines Gain Freight

Figures released by the Interstate Commerce Commission indicate that inland waterways carriers and pipelines are getting a bigger slice of freighting business—with respect to both increased tonnage and a greater percentage of the whole. Rail and motor carriers dropped a combined 1 per cent last year.

Here are the figures. Freight volume handled by commercial carriers in 1951 increased 10 per cent to a total of 1119 billion ton-miles. It was split up:

Railroads, 656 billion ton-miles or 58.6 per cent; motor carriers, 133 billion ton-miles or 11.9 per cent; inland waterways, 179 billion ton-miles or 15.9 per cent; and pipelines, 152 billion ton-miles or 13.6 per cent.

Again...

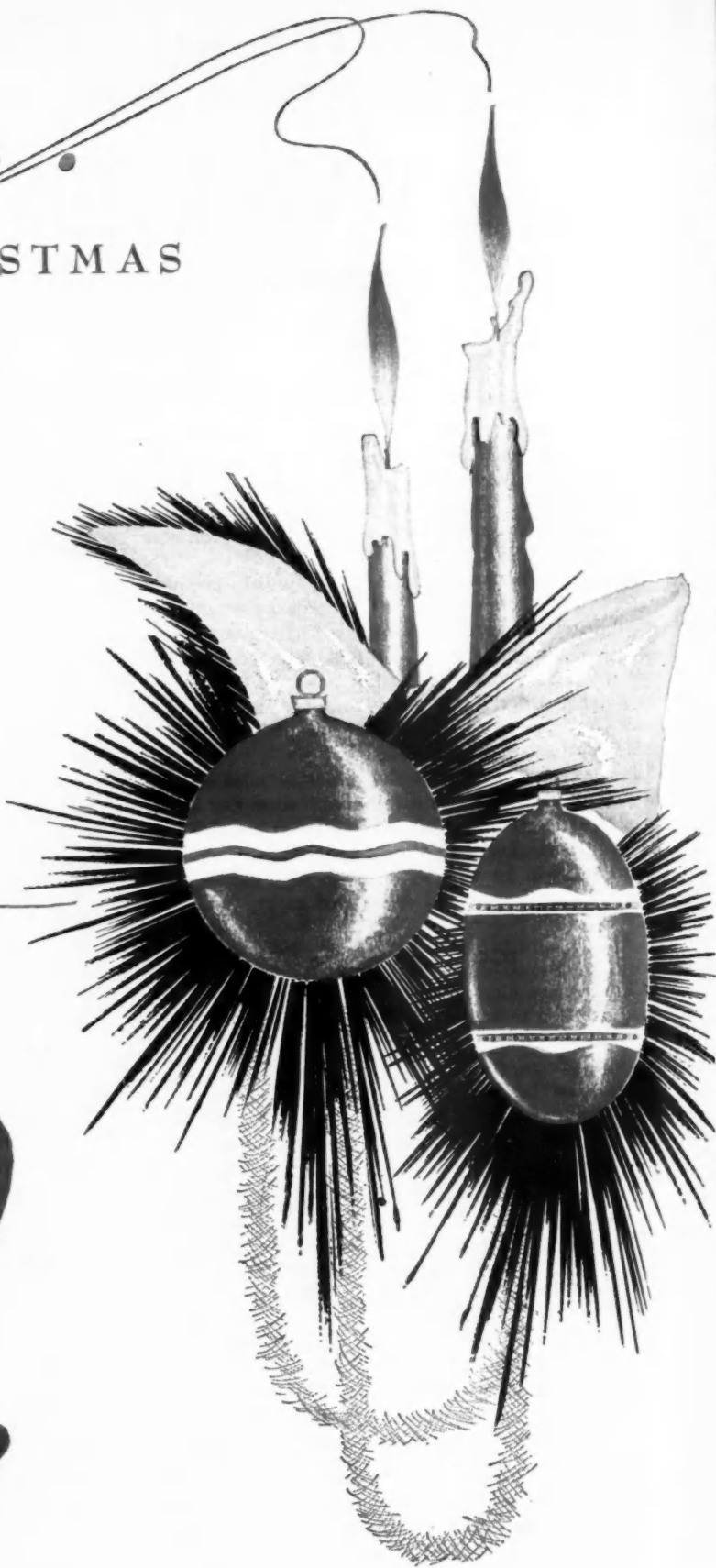
IT'S CHRISTMAS

*And again... as we have done
every year since 1906...
we pause in our business tasks
to thank our
friends and customers...*

*And to express the hope
that we shall continue
to merit your goodwill
in the years to come.*

To You and Yours...

Merry Christmas



Ross

Cam & Lever STEERING

ROSS GEAR AND TOOL COMPANY • LAFAYETTE, INDIANA



DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

New 3-Shoe Air-Hydraulic Brake

Federal-Fawick Corp. has developed a new type truck brake which is being tested currently by Army Ordnance, and which the company is hoping to introduce to commercial truck builders. Basically, it is a 3-shoe brake operated by air or hydraulic, or a combination of both. The company says the unit is completely contained within the drum and eliminates need for air diaphragms, roto chambers, shock adjusters, cam shafts and push rods. Other advantages claimed for the brake are greater stopping ability; lower heat generation; elimination of drum distortion, scoring, and heat checking, and much longer lining life. The company says that in volume production the brake would be priced competitively with systems now in use. Another advantage cited is ease of servicing, since the entire unit may be disassembled by removing three snap rings and three pins. The brake also can be installed on most existing standard trucks without modification of axles and drums and plans are under way to test it in several truck fleets. Original objective, however, is to obtain adoption of the unit by truck builders as standard equipment.

More Muffle for Mufflers

Truck manufacturers are getting a flood of complaints about muffler noise from operators who, in turn, are being badgered by local authorities. The problem now is so serious that at least three companies have told us that they definitely are going to do something about it although the cost will be high. A lot of intensive work is being done on larger mufflers built of stainless steel, steel with ceramic coatings, or aluminized metal. Ceramic coatings look good but they present a difficult processing problem because the perforations plug up during the dipping process.

Truck Prices Look Firm—But Then . . .

There is yet no definite indication about the trend in truck prices for 1953 models but the best bet is that they will not change much, if any. The industry is looking for a very competitive selling year in 1953 and the best guess is that there will be plenty of overtrading and price-cut deals with any sales at full list price something of an exception. All manufacturers are planning heavy production if they can get the materials, which at the moment appears to be a good prospect.

1.2 Million Trucks, 1952

Despite the long steel strike, materials shortages and government allocations it now looks as though the truck builders will come up with about 1.2 million units this year, the fifth best year in history. Certainly there has been no shortage of trucks this year and there is no indication of one in 1953. In fact, the industry looks for all production controls to come off by the second quarter and a real competitive fight for truck sales is certain to develop.

New Truck Lines Later This Year

The next year will see a different pattern in new truck model announcement dates. As of now, most companies are bringing out revamped versions of their existing lines, with some improvements. One exception is Ford, which will have a completely new line. However, at least three companies with only slight changes this year will have new lines to introduce long before the end of 1953. In fact, the first of these is scheduled to appear by early Summer.

Automatics for Light Trucks

Automatic transmissions on light trucks are going to get a real push on upcoming models. Dodge has a torque converter plus a semi-automatic gear box on its half-ton jobs. Ford will put Fordomatic drive on its half-ton panels and pickups. We hear Chevrolet is contemplating Hydramatic or Powerglide on its lighter trucks, but can get no official confirmation and it looks as though it might not be offered at the start of the new model season. An interesting point in connection with automatic drives on trucks is the need for a greater capacity parking brake, since the transmission to engine hookup through a fluid coupling does not provide as much braking against engine compression. We also hear that some work is being done on trying to eliminate the need for dropping the driveshaft for towing trucks with automatic drives which require that precaution.

While most automatic transmission activity in trucks appears to be in the light line at the moment, considerable work is going on to adapt it to heavier units. We find generally that engineers are not as favorably inclined toward torque converters as they are to Hydramatic type using gear sets plus a fluid coupling. An essential element of large truck automatic drive would be some type of lockout for direct gear connection with the engine for downhill braking operations.

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Thermoid Brake Blocks withstand the highest operating temperatures. What's more, throughout their long life, they retain their original uniform friction unaffected by weather, wet or dry, and meet the strictest state and municipal regulations on stopping distances. Despite their rugged construction, Thermoid Brake Blocks do not score or wear down your drums.

Be sure to use Thermoid Brake Blocks. And be sure to ask your jobber to arrange for a *free* survey of your fleet by a Thermoid field engineer. He will take into consideration roads, cargoes, schedules, and equipment . . . recommend the Thermoid brake blocks or brake lining that will provide maximum safety at lowest cost per mile.

Remember! You just can't afford to use anything less than Thermoid—the lining that gives you the brakes.

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Thermoid Company • Trenton, New Jersey

the standard of precision processing in brake lining, brake blocks, hydraulic fluid, cylinder assemblies, hydraulic brake parts.

ccj REPORTS

on News of the Industry

SAE Transportation Meeting

Approximately 300 engineers and fleetmen went to Pittsburgh in October to attend an exceptionally outstanding session of SAE's National Transportation Meeting. The three-day meeting, sponsored by the T & M and the Truck and Bus Activities, with the cooperation of the SAE Pittsburgh Section focused the attention of transportation leaders on such subjects as light weight metals, hydraulic controls, improved braking devices, fleet management problems. Several of these papers are excerpted in this issue. See page 51 for Ted Preble's story on fleet management. See page 62 for Nev Bauman's report on advantages of improved chassis design. See page 63 for another report on light weight metals as applied to commercial vehicles. And finally, don't miss the description of Goodyear's brake limiting device for prevention of skids on page 67.

New York Law May Double Fees

New York has done it again. Without notice, hearings or a chance for discussion, the state's Department of Taxation and Finance has issued a schedule for determining gross weight which stipulates the minimum pay load in relation to unladen weight for which the vehicle may be registered. In the case of light and medium delivery vehicles not now carrying maximum possible loads, the effect of the new rate may double registration fees.

GM Better Roads Award Contest

General motors is embarking on a new project to help get the nation out of the traffic muddle. Launched early last month, the GM Better Highways Awards Competition has enlisted the aid of the American public in seeking constructive action on a broad program of highway modernization.

Question posed for John Q. is this: "How can we

plan and pay for the safe and adequate highways we need?" This question, announced to the public through a battery of newspapers, consumer magazines and trade books, introduces a project designed to set the taxpayer thinking about our present inadequate road system. The public is invited through a series of rules laid down in GM ads to participate with individual answers to the problem.

Incentive to such participation is provided through a total of \$194,000 in prizes for the best essays. There will be six national awards with three winning suggestions receiving \$25,000, \$10,000, \$5,000, and \$3,000 each to three honorable mention participants. Nine regional and 147 state awards will be given.

Automatic Transmissions for Ford Trucks

Ford Division, Ford Motor Co., has announced that its new 1953 line of F-100 series trucks including the pick-up and panel delivery will be equipped with fully automatic transmissions as optional equipment.

Interstate Mileage Tax Proposed

A mileage tax for interstate trucks was scheduled for consideration by the Council of State Government's Board of Managers on December 3. The measure, as proposed, would impose a mileage tax on interstate vehicles commensurate with taxes paid on similar intrastate operation. It would be the only basis for taxing interstate vehicles who would be credited with regular intrastate taxes paid against the mileage tax due. Applying to vehicles with 7000 lb or more unladen weight, or declared gross weight of 18,000 lb or more, or rated capacity in excess of 1½ tons, depending on the basis in the state of adoption, the new uniform law would serve in lieu of present reciprocity agreements.

(TURN TO PAGE 148, PLEASE)

DATES and DOINGS

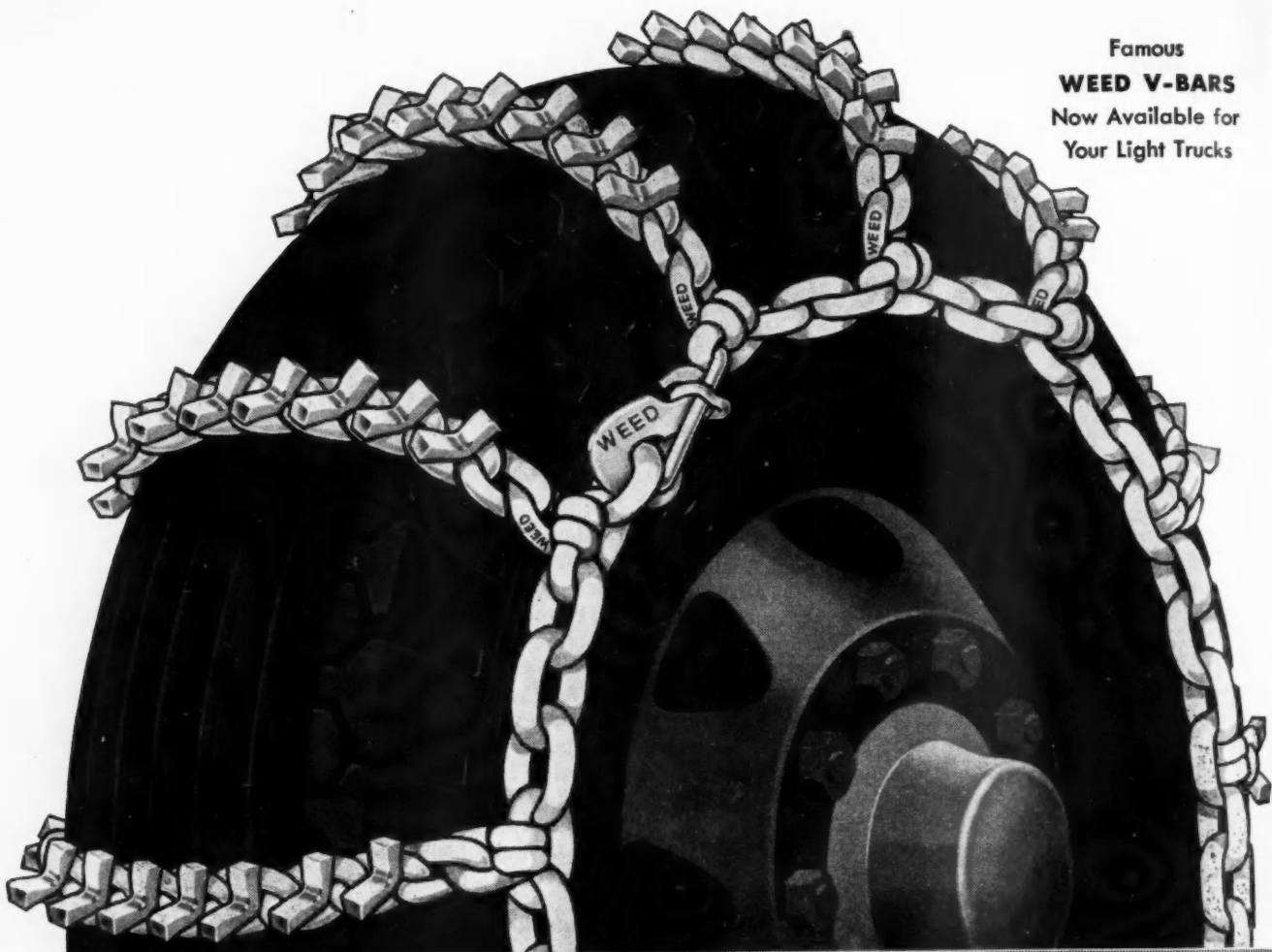
DEC. 10-13—Automotive Service Industries Show, Convention Hall, Atlantic City, N. J.
JAN. 12-16—Society of Automotive Engineers, Annual Meeting, Sheraton-Cadillac Hotel, Detroit, Mich.
JAN. 22-23—National Council of Private Motor Truck Owners, Hotel Statler, Detroit, Mich.
JAN. 26-28—Truck-Trailer Manufacturers Assn. Annual Convention, Edgewater Gulf Hotel, Edgewater Park, Miss.
JAN. 27-29—American Transit Assn., Region 6 Meeting, Plaza Hotel, San Antonio, Texas.

FEB. 17-19—American Transit Assn., Regions 4 & 5 Meeting, Hotel Peabody, Memphis, Tenn.

FEB. 25-28—National Transport Vehicle Show and Fleet Maintenance Exposition, Columbus Ave. Armory, New York, N. Y.

FEB. 26-28-MAR. 1—Pacific Automotive Show, Civic Auditorium, San Francisco, Calif.

APRIL 21-24—Middle Atlantic Regional Automotive Show, Commercial Museum, Philadelphia, Pa.



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Eleven out of fifteen bus lines which won safe operation awards use WEED Tire Chains—ten use WEEDS exclusively. Safety records such as these are no accident. They are the result of thinking, planning, and acting. And now is the time for you to act. Order your tire chains and repairs from your nearby WEED distributor.

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tire chains. They continue first in advance research, first in field testing, and first in design. WEED V-BARS are available for light trucks; WEED BAR-REINFORCED for heavier vehicles. For safe winter driving and long mileage, you can't beat WEED Tire Chains.

Get your vehicles ready to move regardless of snow or ice. See your WEED CHAIN distributor now.

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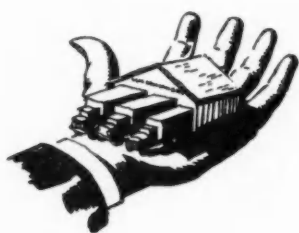
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* Excerpted fr
Transportation
page 62.

COMMERC

What is Good Management?



It encompasses equipment selection and retirement; maintenance; vehicle operating techniques designed to reduce both out-of-pocket and investment outlay—but today's fleet manager has to sell management to do the job right

By T. L. Preble*

Tide Water Associated Oil Co.
New York, N. Y.

FOR MANY years both as a representative of truck manufacturers and as a fleet operator, the writer has had the uneasy feeling that some fleet supervisors have been living in a bit of a vacuum, a negative which nature is reputed to abhor, and which operators should strive to eliminate by selling their provable good works. In great part the "vacuum," if any, exists only by reason of:

First—lack of understanding by senior management as to the intricacies of and the importance of fleet management from a standpoint both of cost and public relations, and the resultant need of employing professionals to direct the job.

Second—inability of some highly competent operators to impress management with the importance of their functions.

It is obvious that a fleet manager should be chosen with simple, important fundamentals in clear perspective, as an important supplement to his technical qualifications.

Clear delineation of the precise scope of the whole job of fleet management has not been achieved in some companies. It should be made clear that the scope encompasses:

1. Equipment selection and retirement, following field job analysis and cost accounting scrutiny.

2. Maintenance.

3. Vehicle operating techniques designed to reduce both out-of-pocket and investment outlay.

That is the whole package. It must be handed to the right man and he, as a member of the management team, must be given authority commensurate with responsibility, modified in some cases it must be admitted by the corporation's organizational structure. Even though decentralization may be the corporation policy, as it often is, the benefits of uniform automotive policies and procedures and free interchange of ideas may not be denied. This can be approximated, whether the automotive man's status is that of staff only, or line and staff.

The following summary presents some of the more important advantages of centralized control (or coordination) and implies, therefore, a definite procedure for the realization

of such control through a reduction of capital expenditure by:

1. Centralized purchase contracts, based on consolidated commitments and savings through quantity purchases.

2. Standardization of types of equipment for specific duties and a consequent reduction of number of truck sizes and types used.

3. Reasonable standardization of make of equipment and consequent reduction of number of makes used.

4. Ability of central control to interchange equipment between companies or components thereof, reduce idle time of equipment, and exert better control of assignment of equipment to meet the requirements of various localities.

5. Possibility of pooling transportation and maintenance activities in specific territories through coordination of activities which can best be achieved through centralized control.

Reduction of Operating Expenses—By

1. Elimination of superfluous overhead.

2. Districting of equipment by make of truck to simplify maintenance and operation.

(TURN TO PAGE 110, PLEASE)

* Excerpted from a paper presented at the SAE National Transportation Meeting in Pittsburgh. See also story on page 62.



**By Doyle Simonsen
and Duane Cram**

**Simonsen Mill-Rendering Plant
Quimby, Iowa**

DURING the past five years most of our fleet of 35 trucks and cars has been converted to burn propane. Many of the problems encountered have been answered by the trial and error method. No one authority has ever had the know-how or experience to guide us past all the troublesome spots. As a result a standard conversion procedure has been developed for our own shop.

This is the story of our most recent conversion—a 1952 GMC Model 350. We also feel that it is probably the best one we have ever made from the standpoint of efficient performance.

The first step, naturally, was to secure suitable carburetion equipment with the proper venturi size. This equipment was first tested and checked on a shop-built bench tester, Fig. 1, before being mounted. (Occasionally we find a leaking vaporizer. In fact, one was found that had not been completely machined at the factory. Frequently economizers do not function as they are intended. The tendency is not to turn rich when the vacuum drops below 6 in. They let the vehicle operate on a lean mixture under heavy load.)

Next and very important was selection of the size of tank needed. It is important for satisfactory operation that the propane tank carry sufficient

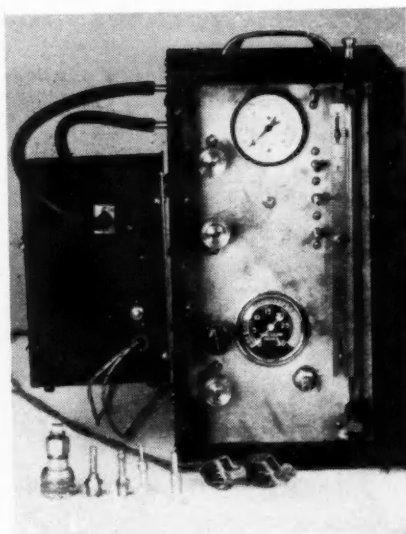


Fig. 1. Shop-built tester designed for checking the vaporizer and the economizer on LPG conversion units

fuel for normal operation between points of supply regardless of the distance. This particular GMC averages 150 miles a day. A 45-gal water tank was chosen because it offered a nice reserve of fuel for emergencies and bad weather.

Compression Raised

WHEN conversion actually started, the head was removed and 0.125 in. was milled off to raise the compression. Maximum on this engine was 7.8. Next the original exhaust valve seats were replaced Fig. 2 with hard seats. These were ground and gaged, maintaining seat to guide concentricity of .001 in. All valves were refaced on a wet valve refacer. This engine came with rotating valves so no change was needed here. Conversions are not made without installing hard valve seats and rotating

valves. If a manufacturer does not supply rotating valves, we borrow or adapt other brands of valves. This procedure has worked well in Diamond T trucks.

Valving Modified

THE NEXT step with this valve-in-head engine was to shorten the push rods, Fig. 2. We do not like to alter the rocker arm angle which occurs after the head is milled. There were two choices on this engine, one was to place each tappet in the lathe and cut off $\frac{1}{8}$ in. from the top and re-insert the cap. The other method was to buy 1941 Chevrolet push rods which were the exact length desired. Chevrolet push rods were chosen.

Manifolding Changed

THE next step was to separate the manifold. The procedure we have developed is not exactly approved by welding authorities but works nicely for us. Fig. 3. The four nuts and studs were first removed. The heat box was cut away to leave as large an air space as possible. A steel plate of not less than $\frac{1}{8}$ in. in thickness or more than $\frac{3}{16}$ in. in thickness was cut to fit into the opening.

This plate was blocked into place, tacked on and then the entire manifold was warmed with a propane preheating torch. As the manifold warmed, the center section and plate were brought to a black heat. Welding was done by electric arc using Electric Alloy Rod No. 2550. A 1-in. section was welded at a time. After this distance was completed the preheating torch was directed across the weld until the red heat had disappeared. When welding was completed following this procedure the manifold was wrapped in several layers of sheet asbestos for cooling.

(TURN TO PAGE 96, PLEASE)

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Step-by-step conversion procedure used by small fleet shows how to get better results with propane fuel. Simonsen reports long engine life, efficient performance

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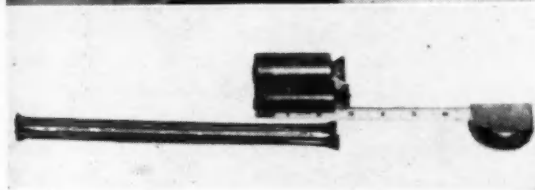
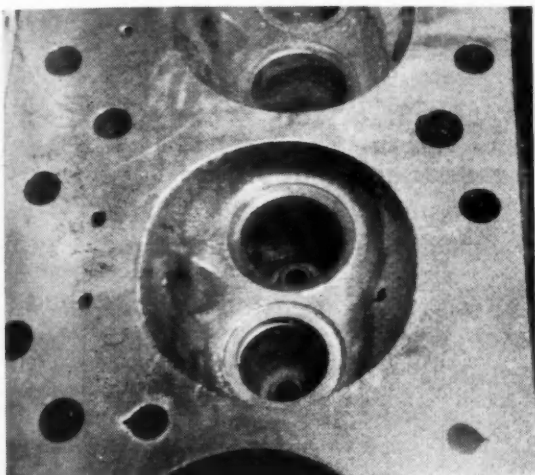


Fig. 2. Shorter valve push rods were used. Original exhaust valve seals were replaced with hard seats



Fig. 3. Right and upper right. Cold manifold was made up by cutting away heat box and plugging area by welding in a steel plate

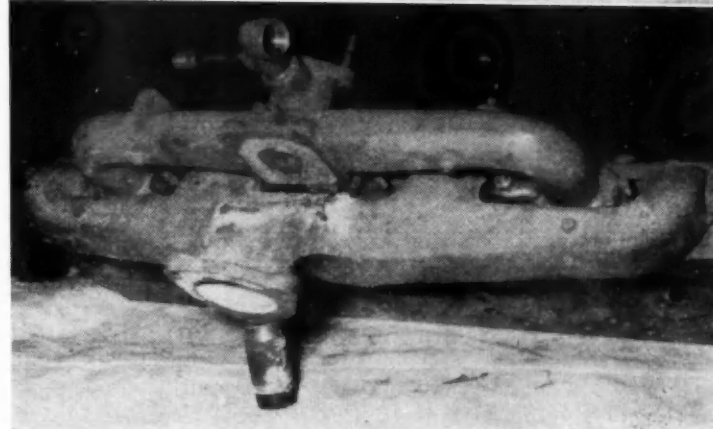
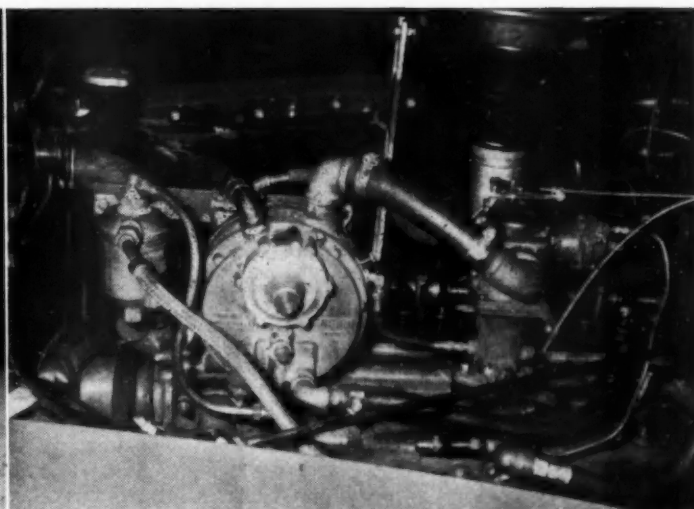
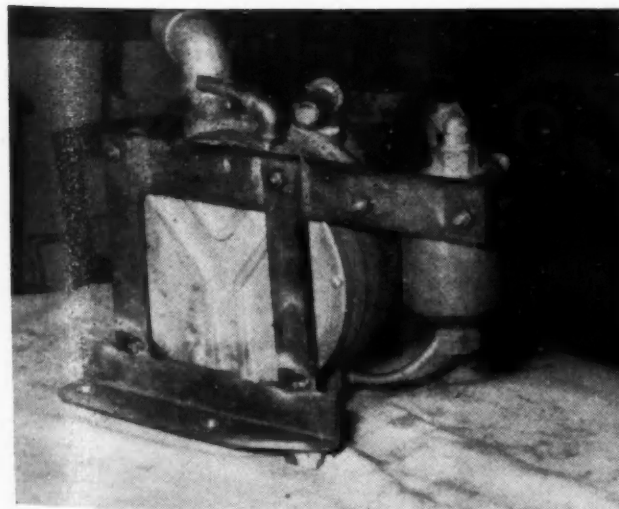


Fig. 4. Below. Mounting bracket for vaporizer and filter made from angle and strap iron and bolted to head near carburetor. Fig. 5. Below right. Vaporizing equipment is clustered, located out of way of other units for easier servicing



Madison Buses Get Better Brakes

A novel approach to fitting brake blocks, checking wear, controlling squeal simplifies PM, ups brake mileage for bus fleet

VIN EVALUATING the effectiveness of our maintenance program I would say that our brake work is most outstanding in making possible safer, more economical operation. We have come up with a series of novel improvements in our practices and in shop equipment which have simplified our work as well as improved brake mileages. We operate 64 32-passenger and two 45-passenger series 71 GM diesel buses in our capitol city, and maintenance-wise, we have things pretty much in control.

Highlight of our brake work is the simplification of the service procedures. Inventory is simplified by carrying only standard brake blocks in stock, Fig. 1, and using shims if

By Fred Wessel

Superintendent of Maintenance
Madison Bus Co.
Madison, Wisc.

the drums have been machined. Oversize blocks are more expensive, and all the wear cannot be obtained unless oversize rollers are used. .025—.040—.065—.080—.100 and .125 shims are carried in stock. Up to .250 can be shimmed. Shims are used over and over again. As the curvature of the shimmed shoe is different from that of the standard brake block, great care must be used when assembling. To do this 5-lb

torque is applied to each of the four bolts, then 10, then 15 lb and so on until all four bolts are fully tightened at 25 lb torque. When fully tightened, there is complete contact between brake and shoe. Block cracks either during assembly or in service, have then been completely eliminated.

Madison saves about six hours bus down-time by the use of the brake kit system. A kit, Fig. 2, consists of drums, wheels, tires, cleaned and packed bearings, and assembled brake shoes with proper shims for that drum diameter. The kit number is permanently stamped in both of the drums. The drums coming off are inspected, and if one of them needs machining,

(TURN TO PAGE 56, PLEASE)

Fig. 1. Various sizes of brake block shims are stored for easy locating

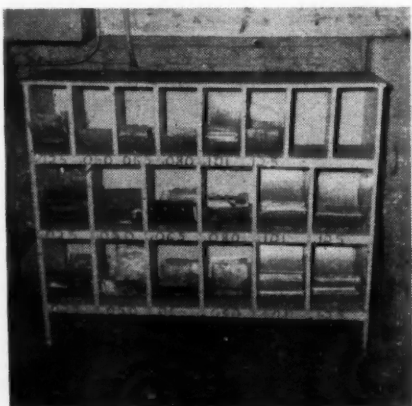


Fig. 2. Brake kits in wheels, tires, drums are stored ready for installation



Fig. 3. Drums are turned with an undercut at bell mouth for a dirt relief

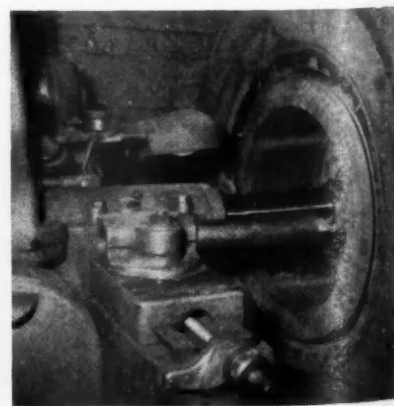


Fig. 4. S to check





Fig. 7. Radiator repair bench used for soldering and checking leakage under 10 lb pressure



Fig. 8. Fuel pump checks for pressure and capacity are made on the generator test bench

Fig. 9. Torque converter oil cooler flusher consists of drums, pumps, valves, detergent

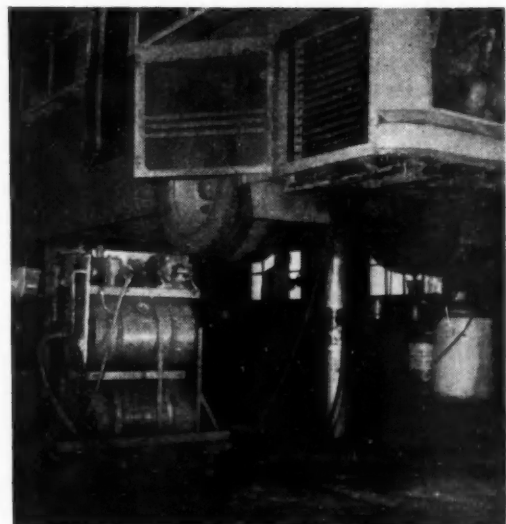


Fig. 10. Home-made battery testing and charging set. Lights furnish 30-amp test load

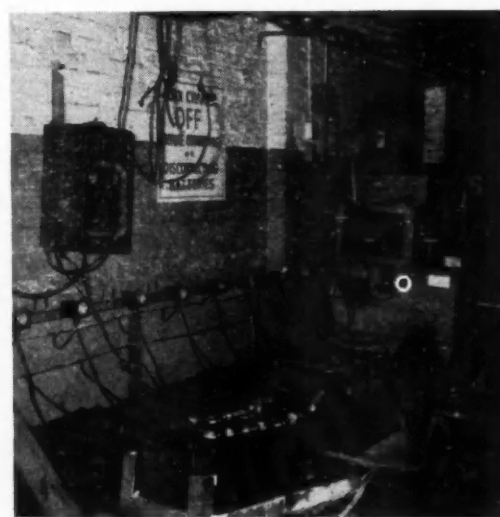


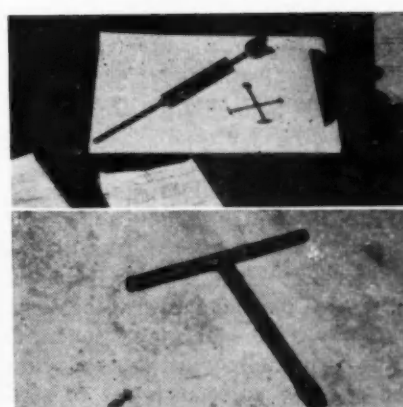
Fig. 4. Special measuring tool designed to check for drum wear and eccentricity



Fig. 5. Three-piece "brake bridge" on drum and wheel eliminates squeal



Fig. 6. Cross for measuring lining wear. Jig for measuring slack adjuster travel



Madison Buses . . .

Continued from Page 54

both are turned to the same size. On rear drums, a .040-in. slot is machined on the outer edge as a dirt relief, Fig. 3, and a method of determining drum wear without measuring is arrived at. After machining, the drum size is written on the 5½ by 8½-in. mimeographed brake reline data sheet. The standard brake shoe diameter of 14.450 in. is subtracted and the result divided by two, Fig. 4. The next sized shim or combination of shims under this is used under the brake shoe. After carefully bolting the blocks on, they were given the same number as the brake drums.

A brake bridge, in the form of a piece of band iron with some brake lining on one end has been Madison's answer to brake squealing problems. Two bridges are bolted on opposite diameters of the drum in such a way that the brake lining end touches, with some tension, the inside edge of the tire rim. At one time, as shown in Fig. 5, three bridges were used but two were found sufficient.

During the 1500-mile inspections, brake lining wear is measured with a gage made of two wires brazed together in the form of a cross, Fig. 6. On each end is a cam gage—1/8—1/4—3/8 in. and so on. The smallest gage is inserted between the upper shim and the drum and successive ones are tried until one will not turn. After determining the amount of wear, the brake air pressure is increased 5 lb for each 1/8-in. of block wear.

When mechanics were in a hurry, it used to be difficult at times to get them to measure the air brake pressure because it was necessary to disconnect a line to attach the gage. To make it easier to check, Schrader valves were installed in all air lines so it is now as easy to measure air brake pressure as it is to check tire pressure.

Instead of a rule for measuring slack in brake travel, Madison uses a special slack adjuster jig as shown in Fig. 6. When using a rule, all mechanics did not measure the same way. Now the edge of the slack adjuster is placed against the air cylinder and the adjuster is set to zero

and the thumb screw tightened. The brake is then applied and will travel to the notch if it is set properly.

Cooling System PM Tricks

WHEN fueling a bus, an investigation is made if it takes more than a quart of water. Deep well water would scale the cooling system, so purified water for the cooling system is purchased from a local plant for 2 cents a gallon. Before drums are taken for refill, enough soluble oil is added to make a 1/2 per cent solution. This oil prevents corrosion and lubricates the pump packing.

A Schrader tire valve is installed in the cooling system so that 10 lb air pressure can be kept on the system during tests. The system was designed to operate at 7½-lb pressure; 10-lb test pressure shows up leaks and also tests the pressure relief valve. Ten pounds wasn't enough to overcome the tire valve spring so these are left out and a tire cap is put on when testing is completed.

At first, some leaky radiator tubes were experienced due to the jolting and twisting the radiator receives during normal service. Rubber cushioning (old inner tubes) which is replaced every 75,000 miles was added to minimize vibration, and corner braces were added for stiffening. Radiators used to be sent out for repairs, but the company feels that their own mechanic can do a neater and more satisfactory job because he understands the bus radiator problems better than an outsider. Fig. 7 shows the radiator repair bench.

To make sure that overhauled fuel pumps have the required operating suction before installation, a bracket is used so they can be tested on the generator test bench, Fig. 8, which is not required full time for electrical testing. Not all overhauled fuel pumps pass the requirement of lifting fuel oil from a can on the floor. This testing saves the installation and removal time which would be lost if a faulty pump were installed on a bus.

In time, the inside of the torque converter oil cooler becomes coated with carbon, reducing the heat transfer rate. If any of it flakes off, it



Fig. 11. Radiator air and water gun

Fig. 12. Home-made wash rack permits three men to wash 21 exteriors and three interiors a day. Spray nozzles are made from worn Zerk fittings



might plug the lines and nozzles. To dissolve the carbon, Madison designed and built a unit consisting of two oil drums and a pump with reversing valves so the flow can be reversed about 12 times during the 24-hour cleaning period. One tank has the detergent and the other contains flush oil to remove all traces of the detergent. The cooler is flushed every 75,000 miles and as can be seen in Fig. 9, flushing can be done without removing it from the bus. In the older buses, fuel oil was used in the transmission, but the newer ones have a self-contained system using a better oil which is changed every 40,000 miles.

Some Shop Time Savers

REMOVING two 180 lb batteries from the bus, was a back-breaking job until a special battery cart (TURN TO PAGE 98, PLEASE)

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Training Program Stymies Road Failures

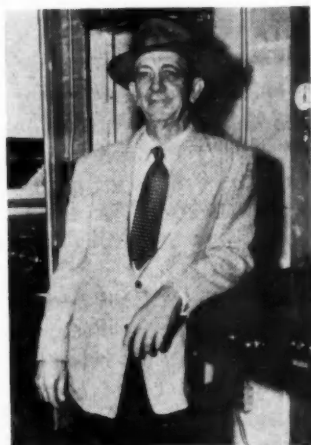
**Driver-wash-grease man training program develops competence
and confidence in personnel. Intelligent vehicle inspections
locate potential troubles before they become road failures**

WE HAVE developed a new driver and wash-grease man training program which has done away with road failures for us. This is a broad statement but that is exactly what has happened—we do not have road failures.

Starting with the wash and grease service personnel, we require just as much screening for this position as we do for a driver of one of our 350 trucks or an operator of one of our 75 pieces of special equipment.

After working at the wash and grease department under a trained service man for 30 to 60 days, the new employee is assigned to the shop and assists in the major overhaul jobs on several different types of trucks. During this period he is at school, being taught and trained by the mechanics who handle the major overhaul job.

The new wash and grease service employee then goes back to his own service department and is there under the supervision of the truck foreman on all units of 2-tons and up, and under the supervision of the garage foreman for all passenger car work and trucks up to 2-tons.



By H. J. Chambers

Supt. of Transportation
Oklahoma Natural Gas Co.
Oklahoma City

We depend on the wash and grease service department to report on leakage of oil pans, valve covers, transmission and differential cones, dry U-joints, broken or faulty brake lines or hose, tire rod ends and drag link,

and misalignment of wheels that show under tire wear.

Because of his training in the shop on major overhauls, the serviceman has become maintenance-need conscious. He learns to watch for the danger signals automatically and make a report as soon as the first evidence shows up. He knows what he saw done and helped do on a similar unit in the shop. He knows what will have to be done to make the correction.

Drivers Participate

WHENEVER an expense is charged against a truck which we feel could have been avoided had the driver been more careful or handled his unit in a different manner, we call in the driver and explain this to him. We spread out the record and show him exactly what it has cost to repair his unit and why it cost that much and how much could have been saved by the driver.

At first we were some apprehensive about this method, but we soon found that the drivers were just as much
(TURN TO PAGE 101, PLEASE)

TESTING—

Key to Driver Selection

In this self-contained article, a well known CCJ author further pursues driver selection problems; outlines details of six key steps

By Donald S. Buck

Traffic Safety Engineer, Department of the Army, Washington, D. C.



THREE MONTHS ago we discussed the relative merits of various types of pre-employment tests for drivers and the great part that management can play in the proper utilization of these tests.

At that time I outlined six primary tests which I believe are most important in the proper selection of a driver. These are as follows:

1. The background or history test.
2. The knowledge or written test.
3. The psychophysical test.
4. The performance or driving test.
5. The attitude test.
6. The placement interview.

Now it is our purpose to discuss each of these six tests with specific comments on what they are and how they can be most effectively put into use by any fleet operator, whether he be involved with trucks, buses or passenger cars.

The Background Test

THE valuable background or history test is rarely employed by the

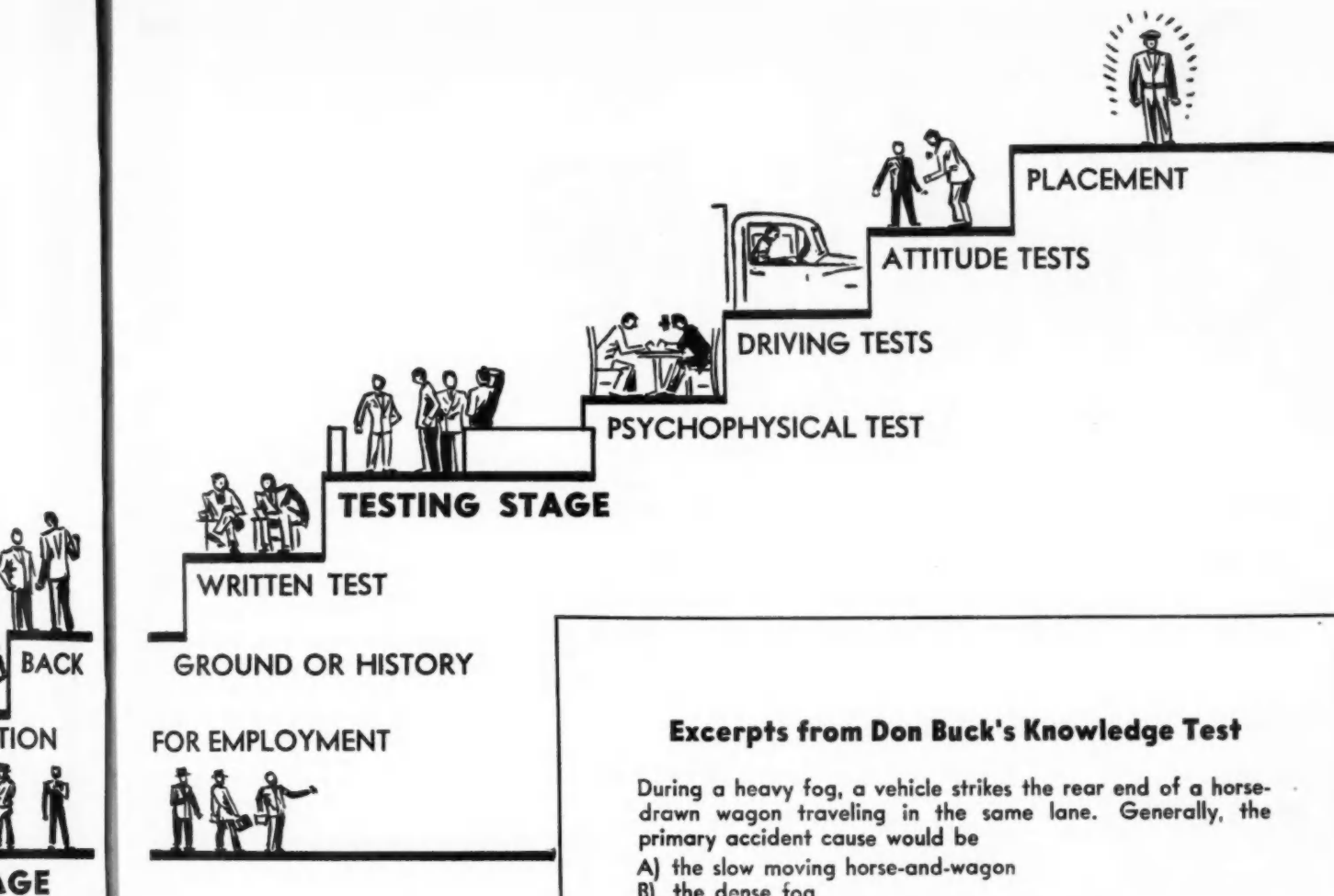
fleet supervisor, who settles for casual questioning such as "How long have you driven?" Failure to investigate the success of the prior performance, or the motivation for seeking employment may be costly. One of the most complete tests in this area is the United States Civil Service Commission. "Driver's Past Performance Test" (see note below).

This particular test comes in an eight-page folder and delves deeply into the actual driving experience that the prospect has had. It provides "yes" or "no" answers to a series of questions on exactly what kind of vehicles the driver has had experience and how long his experience has been. A short section on Repairs & Adjustments asks such

questions as: Have you ever changed tires or wheels, have you ever put on chains or mud-hooks, or have you ever adjusted air pressure in tires? Next comes a section on Equipment with which the prospect has had experience, such as snow plows, power take-offs, winches, multiple gear shifts, etc. Then there is a page on Conditions of Driving that asks such questions as: Have you driven on icy and snowy roads and for how long; have you driven in heavy city traffic; have you driven off-the-road equipment, etc., and finally there is a section that covers the actual number of miles driven, the arrest record and accident record.

When the driver has completed this much detail, you, as a fleet operator, have a very good and a very specific knowledge of his actual driving experience. This, of course, should be checked, at least in a few instances, with previous employers and hometown police to confirm its accuracy and honesty.

NOTE: Commercial Car Journal has procured a limited supply of both the Civil Service Test and the Don Buck knowledge test. Available on first-come, first served basis. Address the Editor.



Excerpts from Don Buck's Knowledge Test

During a heavy fog, a vehicle strikes the rear end of a horse-drawn wagon traveling in the same lane. Generally, the primary accident cause would be

- A) the slow moving horse-and-wagon
- B) the dense fog
- C) unreasonable speed for existing conditions
- D) weather

When you are overtaking another vehicle from the rear, before attempting to pass, you should

- A) move close enough so no one else can get in between you and the vehicle
- B) swing to the left of the center line so you can see when way is clear
- C) depend on other driver to signal when road is clear
- D) stay far enough behind the vehicle so the oncoming lane is clearly visible

If you are involved in an accident resulting in injury to some other person, which of the following should you do first?

- A) notify the police
- B) assist the injured
- C) take precautions to prevent another accident
- D) get the name of the other driver.

On a level icy road, a vehicle equipped with tire chains stops for a traffic light. Another vehicle following is unable to stop and skids into the rear of the halted vehicle. Generally the primary accident cause would be

- A) weather
- B) slippery pavements
- C) unreasonable speed for existing conditions
- D) brake failure

Written Tests

ONE of the chief values of the written test is its use in determining training needs. It explores the driver's knowledge of traffic rules and operating problems or conditions not present at the time of road testing, such as driving on wet or icy pavements, meeting glaring headlights at night, preventing or pulling out of skids and other driving emergencies. Readily administered without special equipment, the written test is flexible, easily revised, and may be given orally where necessary. Drivers should be carefully critiqued on errors made on this test, so that corrective measures may be initiated. Test outlines should be changed occasionally, or several forms employed, to prevent their becoming common knowledge. The areas covered by the written test should include:

1. Traffic rules and regulations.
2. Driving procedures.

(TURN TO PAGE 137, PLEASE)

Shop Hints

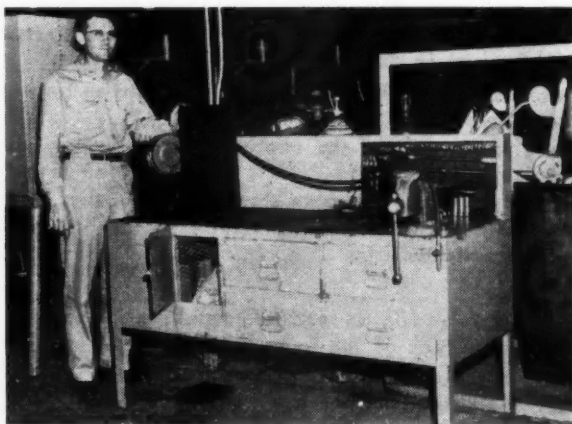
Here are some swell time savers for fleet shops.
Let us have your ideas for new tools or short cuts
to service. We'll pay \$10 and \$25 for good ones.

\$25

Shop Made Work Benches

by H. J. Chambers

Transportation and Maintenance Supt.
Oklahoma Natural Gas Co., Oklahoma City



We're looking for some company that makes or would make a work bench like this. We sure would rather buy them ready made than have to make them ourselves. We now have eight of these benches and are making eight more, however.

We make these benches starting with a piece of steel plate 66 in. long by 28. wide for the work area. They measure 34 in. high and are mounted on 2 by 2 by 3/16-in. angle iron legs. The

steel top has a 2 by 12-in. wood filler under it to serve as a cushion. The back has two sliding doors with shallow compartments for keeping small tools. Under the bench top are four steel drawers and a door compartment for rags. The benches are hooked up with the power line and have a 50-ft. light cord on a reel. They also have an air hose connection.

These benches cost us around \$100 each to make.

U-Bolt Makes Improved

by Lester A. Wilsey, Jr., Shop Foreman
Indianhead Truck Line, Inc.
St. Paul, Minn.

As most fleets, we pack our wheel bearings with tires on the wheel. With the wheel wrenches we had available, it was difficult to take off and adjust the wheel nuts on dual wheels, so we made up our own wheel wrenches to solve this problem. By taking our

Hose Lengthens Life

by A. M. Valencia
Huntington Park, Cal.

I have encountered a considerable amount of trouble with wire leads breaking off right where they connect to the alligator clip. I have tried several ways to prevent this and think that I now have the solution to the

Wrench Adapter Holds

by John Shramko
New York, N. Y.

This is an adapter used to hold a nut in an open-end wrench when working in close quarters. The adapter is used to hold the nut in position while the bolt is turned to catch the nut, after which the tightening may be accomplished without the adapter. The adapter is made from 1/8-in. welding rod sufficiently long so that it may be held in place on the shank of the wrench with the index finger to pre-

Tapered Pin Expands

by Frank P. Coulomb
Inglewood, Cal.

There are occasions when a bolt will slip threads while being tightened and, because of the outside wall of the work is not thick enough, it is not feasible to tap out the hole to the next larger size bolt. The problem is to oversize the bolt. This can be done by drilling out the center of the bolt and driving a pin through this hole. For example, to oversize a 5/8-in. bolt,

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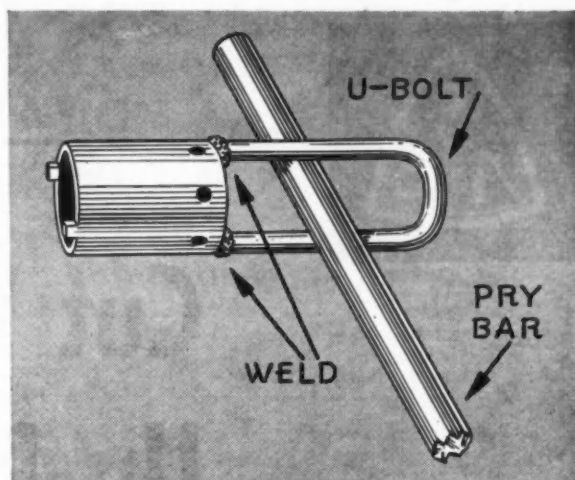
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Wheel Nut Wrench

wheel wrenches and welding old U bolts to them, we have been able to save much time in this operation. The U bolt sticks out beyond the outer tire of the dual wheel 5 or 6 in. This provides us with a means of applying as much leverage as is needed.

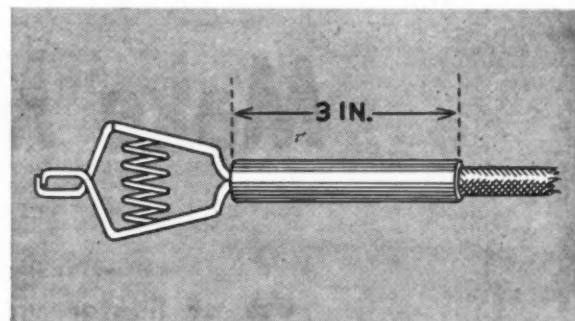
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of Battery Clamp Wires

problem. Take a piece of windshield wiper hose about 3 in. long and run the wire through it. Make the connection on the clip and then force the end of the hose over the end of the clip where the wire attaches to it.

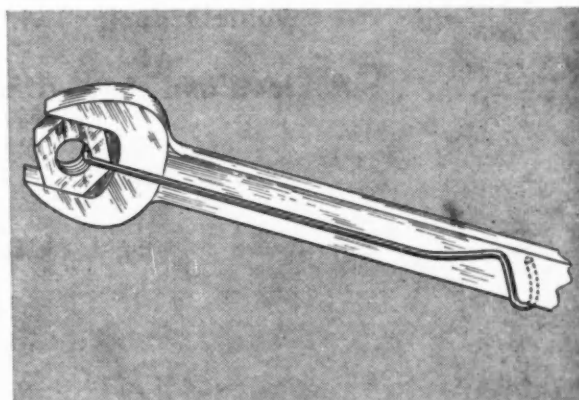
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Nuts for Speedier Work

vent slipping off. The end of the rod holding the nut may be left straight or bent over for a more secure hold on the nut. With the adapter and the nut in place in the jaws of the wrench, the entire assembly is placed against the work and slid to the hole where the nut is to be located. Then the bolt is inserted in the other side and turned until the nut is caught. The adapter is removed and the nut tightened.

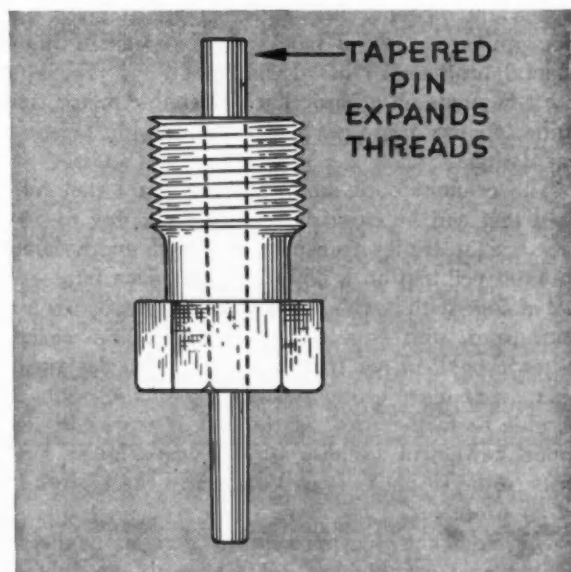
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Threads in Worn Studs

drill a 1/4-in. hole completely through the center and, starting from the threaded end, drive a No. 5 taper pin into the hole. When the bolt is sufficiently expanded, saw off both ends of the pin and finish. This procedure can also be used on shaft ends that might be undersize, as well as where you might want to chase worn threads and still insure a tight fit.

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Cut Weight— Up Payload— Make More Money

**Use of lighter weight metals as well as new
vehicle design will enable operator to up pay-
load and stay within state limits. Here's how . . .**

By J. N. Bauman, The White Motor Co.

VTHE FUTURE development of motor transport being dependent on rendering better service at lower cost, the designing engineer of trucks must recognize this fundamental problem in his design planning. The approach must be made on a basis that will enable motor transport units to carry more payload legally within existing state regulations.

The economics of motor transport are tied into payload that can be carried. The cost per day of an intercity tractor trailer transport unit will approximate \$75 to \$100 per trip on a 350-mile run. This total cost will not change with a wide variation in payload. As a result, a transport unit—due to its design that can carry 2500 lb more payload per trip than one not so designed—will be a much more economical and profitable unit. It will be able to further expand the use of trucks in intercity traffic movement because it will bring lower transport costs to the shipper. It will also meet the highway regulation problems.

The best known approach to greater payload with limited axle weights and total allowable weights is by

the use of light metals. This approach contemplates primarily the more extensive use of aluminum. Some manufacturers have reduced weights by 2500 lb or more, representing approximately 18 to 20 per cent. This has come about through the use of aluminum in non-wearing parts. Trailer and body weights are now down to about their lowest achievement point within acceptable standards of life and wear.

The data furnished in Chart 1 was prepared by the Aluminum Company of America and shows the relative cost per pound for weight saving by the use of aluminum in various design components. It is interesting to note that it varies from 75¢ a pound on some parts to as low as 18¢ per pound on others. This comparison immediately shows the designers where substitutions can be made to maximum advantage cost-wise.

The question as to the point of application where substitution of light weight metal is economical and sound must be determined by its contribution to lower costs or greater earning power to the truck user because of its lighter weight. This then becomes an evaluation of the

NATIONAL TRANSPORTATION MEETING

Chart 1. Cost of Saving Weight on Aluminum Alloy Chassis Parts

Item	Cost of Wt. Saving/Lb. Saved
Forged Spoke Wheels (Dual Trailer)	20¢
Forged Spoke Wheels (Dual Truck)	35¢
Forged Spoke Wheels (Single Front)	40¢
Forged Disc Wheels	65¢
Sand Cast Spoke Wheels (Dual Trailer)	25¢
Sand Cast Spoke Wheels (Dual Truck)	40¢
Sand Cast Spoke Wheels (Single Front)	60¢
PM Cast Spoke Wheels—Use Forged Spoke Wheel Figures	
Spring Hangers—220-T4	50¢
Spring Hangers—356-T6	40¢
Frame Cross Members—220-T4	50¢
Frame Cross Members—356-T6	40¢
Rear Axle Housings	
Timken style with closed bowl	76¢
Eaton style with open banjo	32.5¢
Hubs	
Forged trailer dual	20¢
Sand cast trailer dual	40¢
PM cast trailer dual	20¢
Forged truck dual	30¢
Sand cast truck dual	65¢
PM cast dual	30¢
Forged truck single	33¢
Sand cast truck single	70¢
PM cast single	33¢
Brake Shoes (Compare with malleable)	
Rear Sand	25¢
Rear PM	10¢
Front Sand	35¢
Front PM	15¢

Chart 2. Weight Reduction Possibilities for Highway Trucks and Tractors

	Weight for Steel	Weight for Aluminum	Weight Saved
CAB:			
Roof, Door, Hood, Dash Panels	868	429	439
Cab Frame			
Floor Boards			
Tool, Battery, Seat Boxes			
Misc. Reinforcements, Brackets			
CHASSIS:			
Frame Rails	1050	630	420
Frame Cross Members and Gussets	519	233	286
Bumper	60	33	27
Fuel Tanks and Brackets	195	105	90
Air Reservoir Tank	27	9	18
Tandem Rear Axle Housings	1320	680	640
Differential Carrier Castings			
Brake Spiders and Shoes			
Hubs			
Accessory Brackets			
Spring Hangers, Rear Frame Brackets	150	80	70
Spring Hangers, Front	60	30	30
Disc Wheels, 22" (10)	1150	750	400
Sub Total for Chassis	4531	2550	1981
ENGINE & ACCESSORIES:			
Engine (672 cu in. diesel 165 hp)	1150	515	635
Cylinder Block and Crankcase			
Cylinder Heads			
Oil Pan			
Flywheel Housing			
Gear Case Cover			
Main Transmission Case and Cover	200	90	110
Auxiliary Transmission Case	150	70	80
Clutch Housing	50	25	25
Sub Total for Engine & Accessories	1550	700	850
GRAND TOTAL:	6949	3679	3270

greater payload made possible through weight reduction in terms of additional earnings to the truck user. It must be judged economically on the basis of the additional load made possible and its value as compared to the additional investment in the equipment required and then measured in terms of miles of additional payload necessary to return the additional investment. A determination of this fact, evaluated in terms of the equipment's normal life will then indicate the maximum return that can be expected by the use of lightweight material and will furnish a test of its economic value.

This method of evaluating lighter metal substitution on a basis of ultimate economy is illustrated:

Estimated weight saved by aluminum substitution on tractor	700 lb
Average additional cost per pound of aluminum per pound of weight saved	\$.60
Manufacturing cost of aluminum substitution 60¢ x 700	420.00

(TURN TO PAGE 119, PLEASE)

Aluminum and Magnesium Cuts Weight

By C. L. Burton and E. P. White

Aluminum Company of America

ALTHOUGH there may be a limit to the application of light metals to highway trucks, nevertheless, the past twenty years or more have afforded ample proof that a substantial number of light metal parts can be used successfully in heavy-duty highway vehicles. Furthermore, this usage has passed the experimental stage and has earned its place as standard production practice. At the present time, it appears possible to use approximately 3700 lb of aluminum and magnesium in a tandem drive truck. A general breakdown of this figure is shown above.

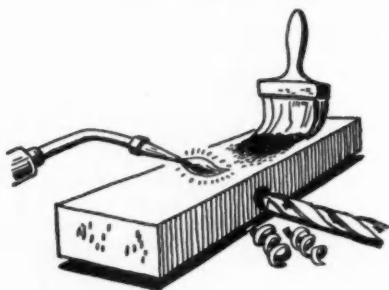
It is worthwhile noting that the aluminum use figures indicated for "Engine" have not yet been realized. There have been a sufficient number of aluminum engines built and operated, however, to demonstrate the feasibility of this application.



Some Service Problems With Magnesium

Corrosion, fabrication, painting and fretting problems with light weight metals can be overcome by rigid control over tried and proven techniques.

By G. K. Glaza and R. E. Perry, The Dow Chemical Co.*



THE MOST serious problem encountered, with magnesium was and still is galvanic corrosion.

Magnesium in contact with dissimilar metals provides a potential source of galvanic corrosion unless adequately protected. Conditions required for such corrosion are: electrical contact between the two metals and an electrolyte mutually in contact with both metals. The electrolyte may be in the form of trapped road splash, moisture in dirt or mud, trapped condensate, or moisture held in corrosion product or insulating material. Obviously, potential galvanic couples will be present because of the necessity of using aluminum rivets, steel bolts, hinges and other hardware, and joining the body to a steel framework. Let us consider the problem of steel used in contact with magnesium. First, it should be recognized that steel-to-magnesium couples are capable of causing severe corrosion of the magnesium.

The answer to this problem involves several steps. First it is necessary to insulate between the steel and

*Excerpted from papers presented at the 8th Annual Magnesium Assn. Meeting

magnesium contacting surfaces. Caulking compounds, insulating tapes, or shims of zinc or 52S or 61S aluminum are suitable for this purpose. It is essential that the insulating interface be maintained in service, so the choice of material is based on the conditions encountered at the joint. An electrical circuit can still exist between the steel and magnesium through mutual contact to bolts, rivets, or other fastening fixtures. Consequently, it is specified that the insulating material overhang the bimetallic joint a minimum of one-quarter inch. The increased distance separating the two metals makes it more difficult for electrolyte to bridge the gap and hence minimizes the galvanic corrosion possibilities. The steel and magnesium adjacent to the contact area must be primed and painted. It should be emphasized that it is even more important to prime and paint the steel than the magnesium.

Now let us consider the problem created in joining magnesium and aluminum. Here we are fortunate that some of the aluminum alloys when coupled to magnesium do not create a serious galvanic corrosion problem under the conditions encountered in this application. These alloys are 52S, 56S, and 61S. Other commercial aluminum alloys can be used in contact with magnesium only by following the same precautions as for steel.

Corrosion Problems

RECOGNIZING the method to combat galvanic corrosion is a small part of the job of eliminating this problem. Fabricators working with magnesium have no experience nor inherent sense to warn them of service problems created by not following prescribed procedures when galvanic corrosion is involved. The fabricator must be made to realize that if he simply orders high strength aluminum rivets, he will undoubtedly receive A17S alloy. It is essential that he knows he should order 56S rivets.

(TURN TO PAGE 132, PLEASE)

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COMMERCIAL

Oil Filters and Engine Wear

High efficiency air filters and full-flow oil filters appreciably reduce damage from wear-producing fine solids

THE CRANKCASE lubricant of an internal combustion engine undergoes a continuous contamination process. Dust entering the cylinders with the intake air and, in some cases, the crankcase via the ventilating system and other induction sources possibly due to leakage, etc., plus worn-off metal from piston rings and cylinder walls and from other abraded bearing surfaces, is flushed into the crankcase and forms a highly abrasive contaminant which, of necessity, must create wear. Water condensation from cylinders and crankcase walls tends to act as an emulsifying agent and when mixed with the aforementioned abrasive contaminants, plus that of fuel blow-by, which is a product of incomplete combustion, tends to add sludge, unburned carbon par-

By Jules P. Kovacs
Purolator Products, Inc.

From a paper presented at the SAE Metropolitan Section Meeting)

ticles, lead salts from octane improvers, and more appreciably in the case of diesels: sulphur, which in turn creates sulphurous acids. This, and a combination of the other aforementioned contaminants creates a regenerative effect upon the contaminants found in the lubricant.

The lubricant may also develop deterioration products of its own. This, of course, is dependent upon

the amount and type of additives contained therein and the type of operation to which the engines are subjected. At high speed, with high engine output, colloidal carbon, granular carbon, oil soluble varnishes, and organic acids are formed. At relatively low coolant and lubricating oil temperatures, such as are commonly encountered in stop and go service, obnoxious cold sludges are formed. The magnitude of this contamination depends upon the type of engine service, the oil temperature the crankcase contents, the oil consumption, the oil change periods, the type of filter used, and last but not least, are the characteristics of the lubricant itself.

The question on how clean should (TURN TO PAGE 92, PLEASE)

Fig. 1 To minimize wear, elimination of abrasive particles exceeding .005 to .010 in. is necessary

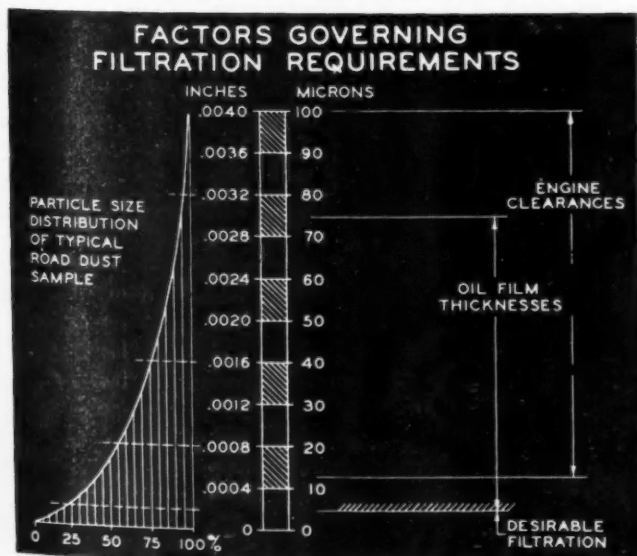
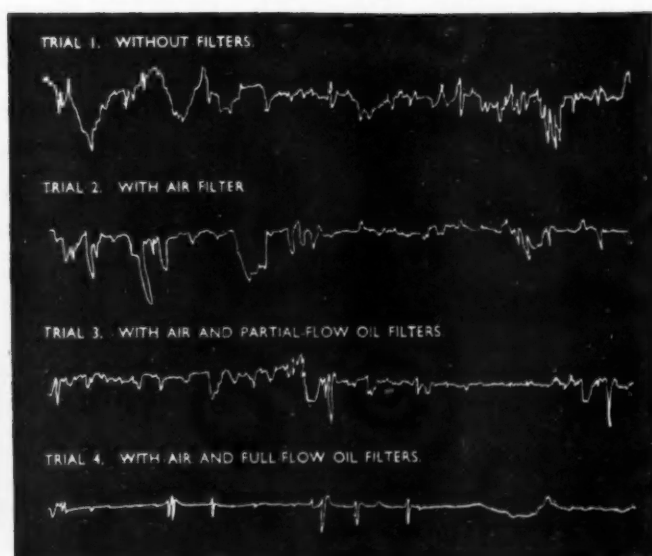


Fig. 2. Comparative profile graph across bearing surfaces after test with different degrees of filtration





Pine Lake Tests Show How to Stop a Truck

Latest braking tests prove that rolling wheels are more stable under braking—

VRECENT BRAKE tests conducted by the National Safety Council's Committee on Winter Driving Hazards at Pine Lake, Wis., developed some interesting data that should be instructive to fleetmen. Tests on the ice circle, for example, show a tandem axle tractor (6 x 4) to be slightly more susceptible to jackknifing than a single axle tractor. When the drive axles are either locked or overpowered, the tandem tractor reaches a jackknife angle of 15 deg about 10 per cent faster than the single

axle tractor. Data comparing these two tractors on the different friction course are rather limited but indicate that the heavier tandem axle provides a greater twisting moment tending to result in a more rapid development of angle than with the conventional 4 x 2 tractor.

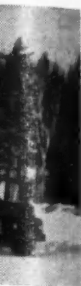
It is obvious that stopping distances are materially affected by the various combinations of axles on which the brakes are locked and on which the wheels are allowed to roll free. The accompany chart shows

average stopping distances on glare ice under a straight stop condition as arrived at in these tests. Tests indicated that jackknifing is less likely to occur if wheels can be slowed without locking during the braking period. As a result of these findings the Committee suggested use of an automatic device (see story on Goodyear's unit on hang pages) as a means of gradually bringing the truck-trailers to a controlled stop. While fanning or feathering was recommended by the Committee as a means of reducing tendency to jackknife, it was generally agreed that driver reaction alone is not sensitive enough to provide for complete control.

For example a typical case of jackknifing occurs when a tractor-trailer combination is taking a curve and the driver is faced with an emergency requiring a decrease in speed. If the driver locks his brakes, he loses the steering power of the braked wheels. With this stabilizing force gone and the frictional forces between tire and pavement reduced by wet or icy surfaces, the sidewise push of centrifugal and other forces can shove the vehicle into a jackknife.



A typical tractor rigged to prevent cab damage in case of severe jackknifing



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ember, 1952

Vehicle Combination	Fifth Wheel Location ²	Speed, mph	Brakes Locked on Axles ¹						Excess Power on Axle
			2	3	1-2	1-3	2-3	1-2-3	
Direction of Angle ³			in	out	in	out	in	in	in
4 x 2 Tractor—Single Axle Trailer	0	15 10	2.7 2.1	6.8 S	S ⁴ ...	S ...	2.5 3.0	S ...	1.4 2.3
4 x 2 Tractor—Single Axle Trailer	20	15	2.3	4.3	S	5.8	3.0	S	1.9
4 x 2 Tractor—Tandem Axle Trailer	0	15 10	2.5 2.7	6.2 S	S S	S S	2.6 3.8	S S	2.7 3.2
4 x 4 Tractor—Tandem Axle Trailer	12	15 10	2.8 4.2	3.9 7.0	4.5 ...	4.5 ...	3.4 5.3	S
6 x 4 Tractor—Tandem Axle Trailer	0	15 10	2.2 2.9	3.0 4.5	6.0 S	2.7 S	2.0 3.6	S S	2.4 ...

¹ Axle 1—front tractor; axle 2—rear tractor; axle 3—trailer.
² Inches forward of rear tractor axle.
³ in—toward center of circle; out—toward outside of circle.
⁴ S designates high stability; angle at fifth wheel did not reach 15 degrees.

indicate need for device to control stop



Drivers should know that:

1. Power is effective in recovering from jackknifing provided the wheels are not allowed to spin.
2. With the front wheels rolling, jackknifing can be prevented provided steering is started sufficiently early and there is room for the vehicle to be driven straight on a tangent to the curve being negotiated.
3. Spinning the rear tractor wheels by overpowering will result in violent jackknifing.
4. Simultaneous and equal pressure on all brake drums offers the best solution to stopping safely.
5. Jackknifing is most violent when brakes are locked on only the rear tractor wheels or on the rear tractor and the trailer wheels.

correlated on a multichannel oscillograph. Complete figures were thus available so that a study could be made of what was taking place at any given moment.

The tests were conducted on glare

Braking on Ice

Time in seconds for the angle at the fifth wheel to reach a value of 15 deg on a curve of 212 ft radius

ice at speeds between 10 and 20 mph. The vehicles were driven in a fixed circular course to ensure that the centrifugal force was constant while various techniques for producing and overcoming jackknifing were tried.

The study of driver techniques showed that the use of the throttle and steering predominates as successful means of recovering from jackknifing.

Some of the conditions brought to light by the 1952 tests that affect jackknifing are:

1. Reinforced tire chains were found to make jackknifing virtually impossible with a tractor semi-trailer combination on level lake ice at speeds up to 20 mph.
2. Recovery from jackknife angles up to 90 deg was possible with front or all-wheel drive.
3. The development of an automatic device to fan the brakes, thereby maintaining rolling wheels while at the same time providing maximum deceleration, should produce the ultimate in both stopping and directional control.

New Brake Limiting Unit

POSSIBILITY of preventing motor truck skidding, one of the greater hazards of the highways, by applying separate electric wheel controls was described at the SAE Transportation Meeting in Pittsburgh. The device, described by A. C. Gunsaulus, of Goodyear Aircraft Corp., embodies an electric control for each wheel. The system senses, automatically and in advance, when overbraking threatens to cause wheels to lock, slide, and skid. It releases the braking pressure so that wheels may turn and maintain traction. Rolling tires have steering ability, and grip the road; sliding tires back both functions. The job of the electric control system is to keep the tires rolling and gripping by releasing the wheel-locking brake pressure in that small fraction of a second before skidding starts. Motion pictures of tests made on the ice of Pine Lake reveal that even on smooth ice, a tractor trailer combination could be stopped without skidding or jackknifing.

(TURN TO PAGE 122, PLEASE)



What's New—in Tires?

Better compounded rubber, improved tread designs, better cords guarantee higher tire mileages . . . but more improvements are coming. Supply is adequate—says Len Westrate



▼ DID YOU KNOW that the truck tires you are buying today are from 20 to 25 per cent better than the ones you bought two years ago? At least, that is what the men said when we asked them about it in *Commercial Car Journal's* survey of the truck tire industry.

Truck tire men point out that the improvement in quality is due to several factors, including tougher carbon blacks, better compounding of rubber, development of processes for controlling stretch in cords and, in general, improvements in all around tire building know-how.

Another factor that the tire industry points to with some pride is that, while today's tires are better, they are cheaper than they were two years ago by something like 10 per cent. At that time, of course, natural rubber was higher than it is today. Nonetheless, the industry does have a pretty good story to tell price-wise, since the average truck tire has increased only about 29 per cent since the end of the war, which is considerably less than the increase for most other commodities that truckers buy.

Most pronounced trend in the truck tire industry today is the move to-

ward greater tread wear and longer life achieved through basic design changes. This is expressed principally in a flatter contour in tread design with a higher build-up at the shoulder to give greater contact area with the road and also a firmer grip. The more blocky construction which gives the higher shoulders also gets away from scuffing or wiping action, thus increasing tread life.

Another development of considerable interest is the move by several companies to offer a traction thread-type tire particularly adapted to the drive wheels of the tractor and selling at a premium of approximately 12½ per cent. Tests indicate that mileage with this type of tread is greatly increased far in proportion to the price differential. There is, however, some doubt as to their suitability for use on trailers and particularly on the front wheels of the tractor.

Removal of most rubber controls has been extremely helpful in getting a better compounded rubber and permitting the use of natural rubber in all areas where its high heat dissipating superiority is required. Actually, most truck tires in the larger sizes being built today have a very high percentage of natural rubber, but the companies, for competitive reasons, will not say just what the

percentage is, since it is not the same for all brands, or even lines within an individual brand. There are, however, certain areas in a tire in which synthetic rubber actually is better than natural.

In smaller size truck tires which use an appreciable amount of synthetic rubber, and in those areas of larger casings where synthetic is used, use of cold rubber is increasing in importance because of its superiority over the old GRS type. Today the switch-over to the cold rubber process in rubber manufacturing is far along; this year 60 per cent of total output will be that type.

Developments in actual processing of rubber using oil extenders are encouraging. The industry has one or two types of synthetic rubber that are extremely tough, resilient, and elastic but which, because of their toughness, present extremely difficult processing and milling problems. However, considerable work is being done on the manufacturing processes which may make these tough rubbers available before too long.

Even Better Tires to Come

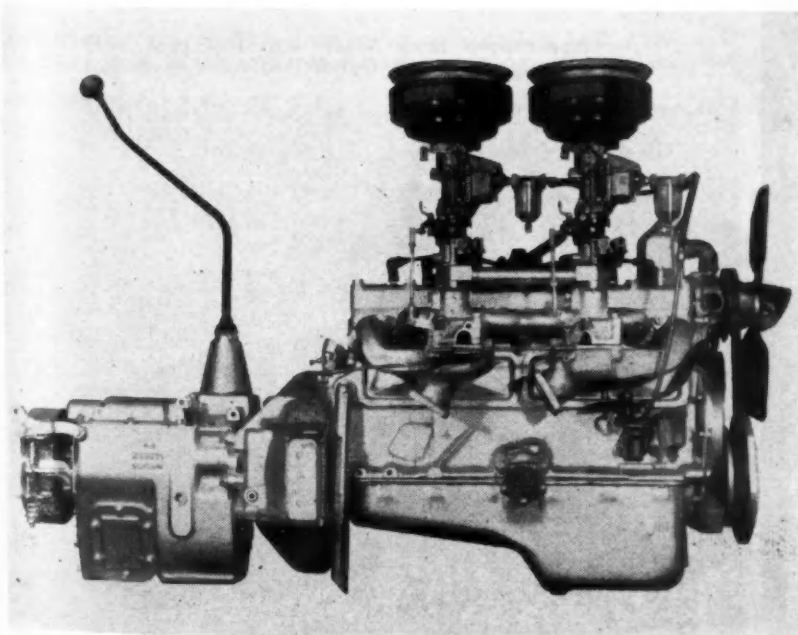
LOOKING to the future, the tire industry is certain that even better tires than those built today are in (TURN TO PAGE 102, PLEASE)



Dodge Ups HP in B-4 Line

Three larger displacement engines power new series. Automatic transmission available on B and C models—twin carburetion for K and KA's

Above. The 2½-ton tractor with 128-in. wheelbase. Below. The 265.37 cu. in. engine used on 2½-ton models



THE NEW line of Dodge Job-Rated trucks known as the B-4 series features three new engines of larger displacement and increased output. The 1½ and 2-ton models will be equipped with a 250.6 cu in. engine in place of the former 236.6 cu in. engine. Exhaust valves are silicon-chrome steel. Incident to this change, there will be a larger exhaust system, larger capacity battery, more powerful starting motor, and increased radiator core depth.

A 265.37 cu in. engine will replace the former 250.6 cu in. engine on 2½-ton models. The new engine has multiple-layer main bearings, sodium-cooled stellite-faced exhaust valves, bronze exhaust valve guides, flame-hardened crankshaft, improved intake and exhaust manifolds, and cooling system of increased capacity. In addition, twin carburetors, manifolds and exhaust system are extra equipment on the higher output engines for the 2½-ton K and KA models.

The 4-ton model is powered with a new 413-16 cu in. engine of the same design as the former 376.98 cu in. engine.

Engines for 2¾ through 4-ton models incorporate some additional

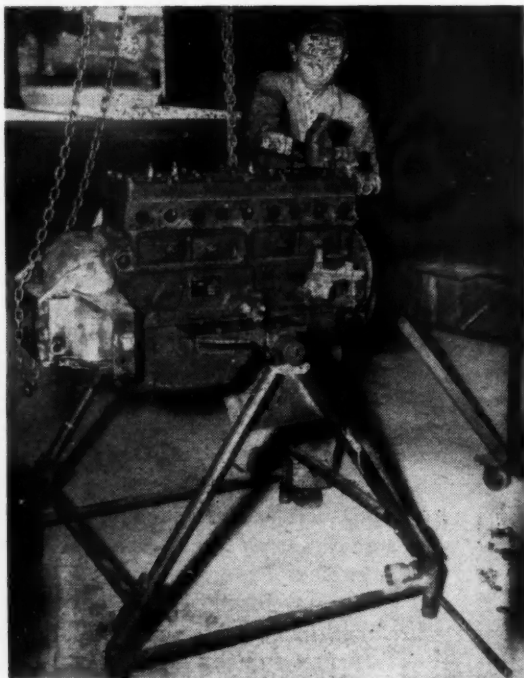
(TURN TO PAGE 116, PLEASE)

SHOP-MADE DEVICES Speed Sm



Spring rack uses steel pipe and angle iron framing —holds 40 springs for quick access

Engine rebuild stand made from four sections of 1-in. pipe bolted together as shown. Adapter plates are bolted to shafts set in old con rods

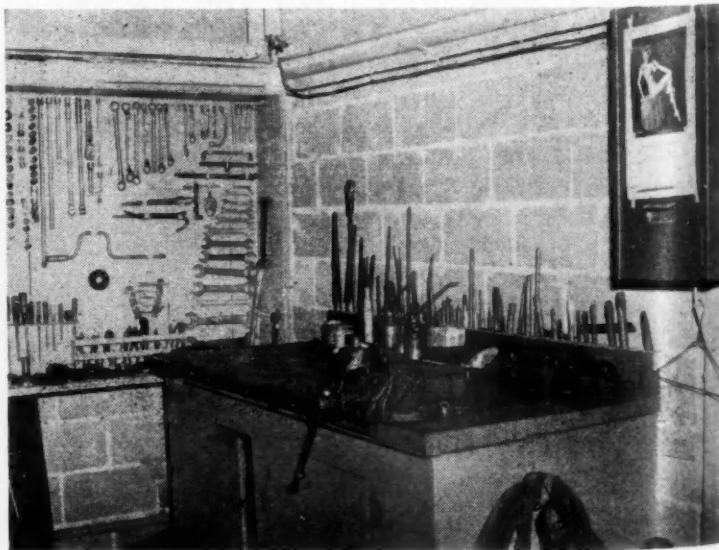


▼ OUR NEW \$110,000-terminal here in Windsor contains an up-to-date fleet shop that is ideally equipped to service our 74 truck trailers, vans, city stakes and 25 tractors without delay. Our repair and service programs are set up to mesh with our running schedules. Much of the credit goes not only to our top notch mechanics but to our shop-designed equipment as well. Here are just a few samples of equipment that keeps our express trucks out on the road earning revenue.

We have developed and utilized to good purpose a number of "work-expediting dodges" that have aided tremendously in accelerating and easing our maintenance work. Our spring rack is an example. Using steel pipe, we built this rack to hold 40 springs of various sizes, the smallest ones at the top tier of the rack with the springs increasing steadily in size on the following tiers of the rack. We always know how many springs we have in stock, what sizes they are. They are easy to get at, easy to remove from the rack.

Right beside the spring rack we have built a bench about a yard square out of steel plate with the supporting framework made out of 2 in. by 1/2-in. bar steel. Underneath the top we have installed a screw out of the drop wheels from a trailer and have supplied it with a handle to permit us to turn the screw. As the screw turns it activates a sort of double lug arrangement, causing the lug to advance or retreat as we wish. When we have a spring to fix, a new leaf to insert for instance, we lay

Steel-topped work bench with tool rack built into back provides for quick location of hand tools and equipment



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COMMERCIAL

ed Small Fleet PM

Parts and steel storage facilities,
individually-designed work benches,
engine overhaul and run-in aids help
this fleet to better maintenance

By Leo Thibodeau

Thibodeau Express, Windsor, Ontario

the spring down on the bench top, turn the handle to the screw, which causes the lug to advance eventually to pin the spring immovably against a steel plate at the front of the bench. In other words, it is a sort of vise.

When the spring is thus held tightly, it is a cinch to remove bolts and shackles and is equally a cinch to put them on again after the new leaf has been inserted. We have lots of spring trouble so this little gadget certainly pays its way. Underneath the bench top we have a drawer containing a number of spring bolts of various sizes.

Another little feature we like in our new terminal is the mezzanine floor about 60 ft long by 12 ft wide, running above and to the left side of the garage, where we store larger parts and all unmounted tires. When we wish to mount a tire, we lift up a trap door cut through the floor and lower it to the small tire department beneath, where it is mounted.

In the garage we keep on hand an unusually large stock of bar, rod and

flat ribbon steel. This is kept off of the floor and out of the way, yet is accessible on a special rack about 20 ft long and seven tiers high and fastened to the outside wall of our stockroom.

When we equipped our new garage, we built three work benches for the mechanics out of wood with heavy steel plate tops. Any mechanic can use any bench at any time. A row of windows admits much light on these benches, with further illumination provided by reason of the eighth lengths, 32 ft in all, of fluorescent tubing immediately above the benches.

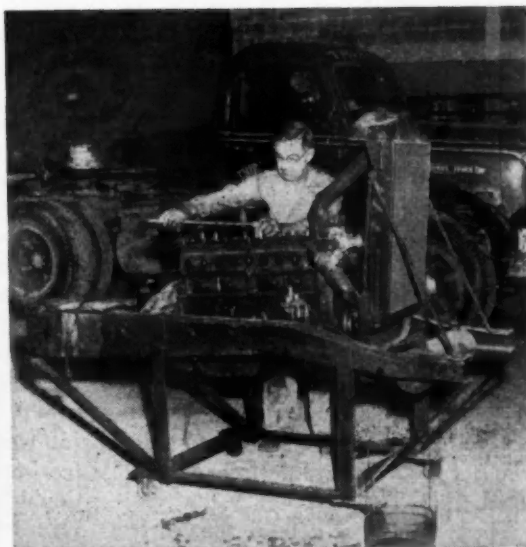
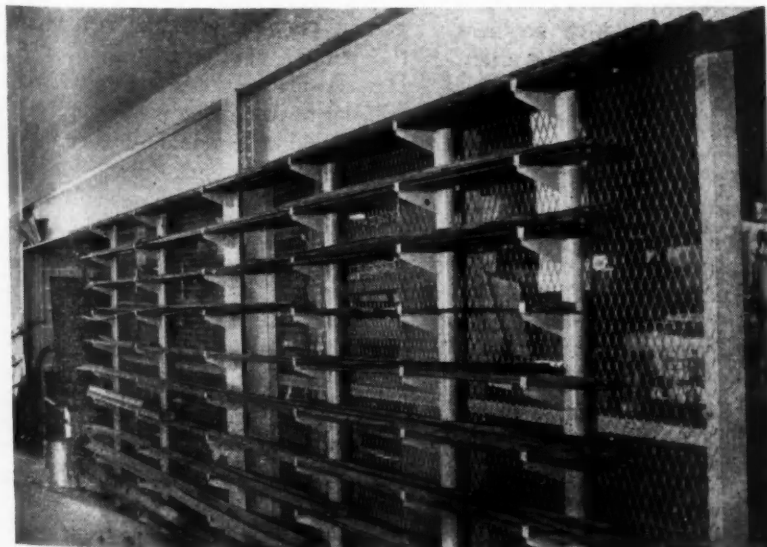
Our mechanics have their own tools but we also supply them with all
(TURN TO PAGE 108, PLEASE)

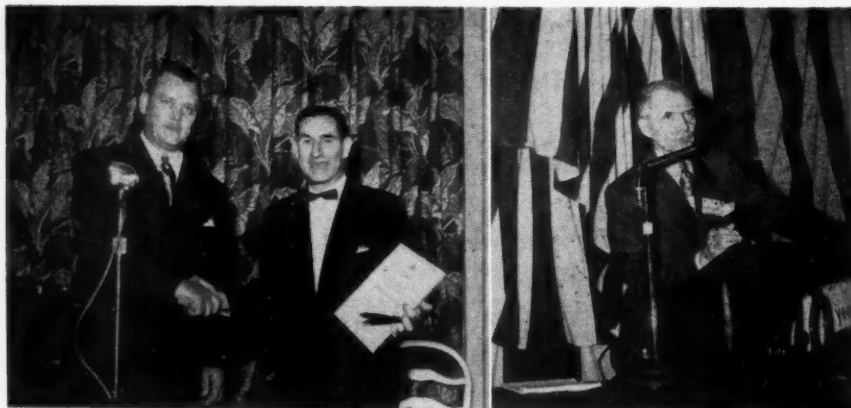


Spring rebuild jig clamps spring together until center bolts are installed

Storage rack for steel, 20 ft long and 7 tiers high is built from steel pipe and special brackets—provides for easy accessibility of material

Engine run-in stand with testing instruments expedite the 16-hour break-in of overhauled engines





M. R. Jensen, supt. of transportation, Consolidated Freightways, Inc., and newly elected general chairman of Commercial Vehicle Section, presents gavel to C. D. Calkins, director of Safety, Pacific Motor Trucking Co. Right, E. G. Cox, section of safety, Bureau of Motor Carriers of ICC, reports on new ICC rulings

By Randall H. Howard
CCJ Correspondent

National Safety Congress Studies Accident Costs

Commercial Vehicle and Transit Section features

long list of speakers covering individual answers

to question of reducing costs of employee accidents

V SEVERAL HUNDRED executives representing motor transportation fleets all over the U. S. met recently in Chicago for the Commercial Vehicle and Transit Sections of the National Safety Congress. A battery of speakers from the transportation industry provided some interesting and practical answers to the age-old question, "What can be done to reduce costs of employee accidents?"

The chief program feature, during the three-day joint session of both the Commercial Vehicle and Transit sections was the presentation of trophies for the 26 divisions in the National Fleet Safety Contest, in which a total of 1435 fleets had competed.

These fleets, in a total of nearly

two and a third billion miles, had reported a total of 52,927 accidents, giving them a cumulative accident rate of 2.29 per 100,000 travel miles. This rate indicated an increase of about 1 per cent, as compared with the cumulative rate in this contest for the previous year.

It is interesting to note that, before any of the contest awards had been made, the safety records of the top five fleets in each of these 26 divisions were subjected to a preliminary certified audit, as a check on the accuracy and validity of their reported records. This big check-up job was handled by a group of volunteer auditors, members of the National Safety Council, who personally visited 263 fleets located in 105 cities.

The comparative accident frequency rates for the 26 different divisions varied from a low of only .35, achieved by the 20 fleets in the Government Intercity Division, and on up to highest reported rate of 10.17 by the 57 fleets in the City-Truck-Common Carrier Division. Only a little below this highest division accident rate was the average of 8.56 for the (29) fleets in the City Bus Division.

In comparison, the six fleets in the City Suburban Bus Division had an average accident rate of 5.89. And in sharp contrast, the 23 fleets in the Inter-City Bus Division had a low rate of only 1.11—less than one-half the general cumulative rate of 2.29 for all the 1435 fleets in the 26 reporting divisions.

A featured speaker was K. N. Beadle, director of safety, Pacific Intermountain Express, Oakland, Calif., on the topic "Vision Plus Application Makes the Difference." He had gained previous national renown as the winner of the first Marcus A. Dow Award. In his vigorous brief talk, he reviewed the methods which, in a period of five years, had enabled his company to make large reductions in their accident rates and costs per thousand miles of operations.

He described as "the real payoff for safety," the fact that PIE had operated at the same accident cost—\$173,000—during the past year as it did in 1946, while traveling 41 million miles, as compared with only 16 million in 1946.

He further stated that, on workmen's compensation, the company

(TURN TO PAGE 126, PLEASE)

Free

PUBLICATIONS

FOR YOUR CONVENIENCE USE THE POSTCARD ON NEXT PAGE

L32. Carburetors

"Know Your Carburetor" is the title of a recently announced 46-page handbook pointed particularly to the man who has not had extensive training in carburetor servicing. The new booklet, well illustrated, describes in non-technical language the basic theory of the carburetor, its various parts, and the common carburetor troubles.

It is pocket size and divided into ten sections: How Carburetors Work, Carburetor Trouble, Carburetor Care, How to Clean, How to Adjust, etc. Each section contains easy to understand descriptions and detailed illustrations that portray the various carburetor parts and how they function. Mark L32 on the postcard to obtain a copy.

L33. Dynamometers

The complete discussions of a recent Society of Automotive Engineers symposium on the use of dynamometers in fleet maintenance have just been published under the title, "Finding Horses and Putting Them to Work." Included in the booklet are major presentations by E. L. Cline, Clayton Mfg. Co., K. E. Rush, Cummins Service and Sales Co., and A. L. Springer, Pacific Intermountain Express.

Use of dynamometers in periodic inspection, diagnosis, after-repair checks and final adjustment, together with operating procedures and ways of keeping and using performance records on each vehicle are covered in the Cline talk. Specific maintenance problems and service troubles, such as shortcomings in delivered horsepower, smoke regulation, fuel system weakness, mechanical noises, cooling system malfunction, lubrication system weakness, etc., and how they can be most efficiently han-

dled by means of dynamometer diagnosis are outlined in the presentation by Rush. Springer's article also includes dynamometer use and presents data on the use of engine and chassis dynamometers in fleet maintenance. You can obtain your copy by marking L33 on the postcard on the following page.

L34. Tune-Up Data

A 21 by 28-in. chart recently made available lists tune-up specifications for Chevrolet, Dodge, Ford, GMC and International trucks. Covering models from 1934 to 1952, the two color chart also lists data for all automobiles. The chart contains detailed, illustrated instructions for making carburetor float level adjustments, as well as tune-up data for compression, spark plug gap, gap point, cam angle, spring tension, float level, fuel pump pressure, timing settings, valve clearances and generator amperage and voltage settings. Write L34 on the postcard for your copy.

L35. Lift Truck Chart

A handy electric fork truck comparison chart is available. Designed to permit the potential fork truck buyer to quickly make comparisons of various fork truck makes, the chart lists 27 buying guides. There is space for comparative analysis of the several points and the chart is made in a convenient, folded size for filing and handy reference. Sections of the chart cover elevation, mast height, tilt, speed, turning, braking, lubrication, safety, servicing, batteries, weight and price. You can get your copy by marking L35 on the postcard.

L36. Tandem Drive Axles

Complete operation and maintenance of Eaton's tandem drive axles, Model No. 36M, is covered in their latest 19-page handbook. The booklet opens with a numbered diagram of the axle detail and a listing of 106 different parts. The first section of the book covers the disassembly of the axle with easily understood photographs and step-by-step numbered text. The later section covers in the same manner the assembly of the serviced axle and details on adjustment for proper operation. Inside of the back cover is a guide to selection and use of lubricants for the axle. A special section is included on hypoid gear adjustment. Mark L36 on the postcard to obtain your copy.

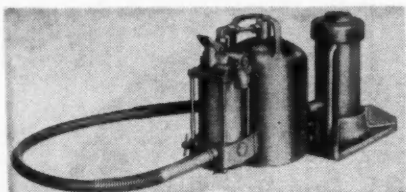
L37. Union Wage Scales

Covering both private and for-hire carriers, the preliminary report for 1952 of the U. S. Department of Labor on union wage scales for motor truck drivers and helpers has just been released. The report lists hourly rates for various classifications in 77 cities as of July 1, 1952. Subsequent changes in rates, even though retroactive, are not included. The rates given represent the minimum hourly wage rate for a maximum work week schedule at straight-time pay agreed upon by unions and employers through collective bargaining. They do not include overtime beyond agreed maximum weekly or daily hours nor do they reflect premium rates.

The report is divided into five regions; New England—7 cities, Middle Atlantic—11 cities, Southern—24 cities, North Central—24 cities and Pacific, Rocky Mountain—9 cities. For your copy, mark L37 on the postcard.

NEW Products

ADDITIONAL DETAILS AVAILABLE UPON REQUEST VIA POSTCARD

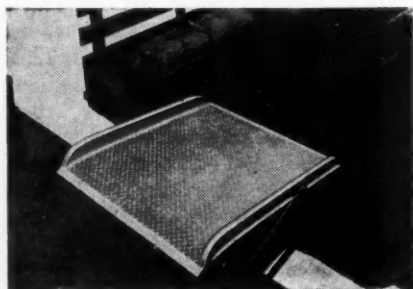


P176. Air Jack, Wrench

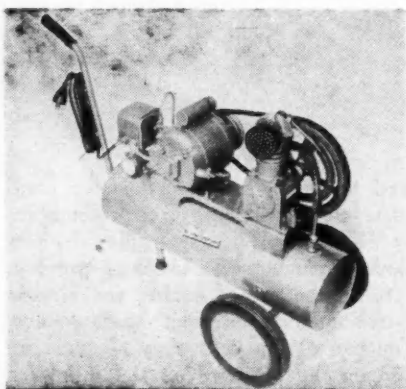
Two new air-operated tools have been announced by Chicago Pneumatic Tool Co., New York City. The Model No. CP-790 air impact wrench, rated to 1 1/4 in. bolt size, is available with standard or 6-in. extension drive shanks and is furnished with a detachable angle head for close quarter work. The Model No. CP-705TC truck jack is hydraulic and actuated by an air-powered hydraulic pump requiring only 6 cfm and 90 psi. Rated at 20 ton, the unit is easily rolled into position.

P177. Dock Boards

Designed for use in truck loading operations a new model magnesium dock board has been announced by Magline, Inc., Pinconning, Mich. The



new unit combines bridge design strength with lightness and one-man handling. It is manufactured in two rated load capacities, 1000 lb per axle and 2000 lb per axle. They are crowned to compensate for the height differences between truck and dock level and can be reversed when the truck bed is lower than the dock. A patented, automatic drop lock anchors the board into position and prevents slippage. The design of the board permits the truck to back within 3 in. of the dock.

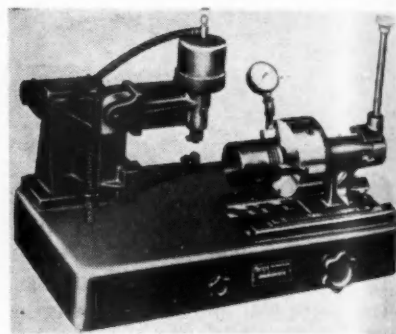


P178. Air Compressors

Service truck mounted and portable model air compressors have been announced by Kellogg Division, American Brake Shoe Co., Rochester, N. Y. The Model No. GF-331-XA, designed for mounting on tire service trucks, is approximately 3 1/2 by 3 1/2 by 2-ft in size with a displacement of 20.5 cfm at 165 psi. The compressor is gasoline-engine-driven and equipped with electric self-starter, muffler, battery and ground cables, automatic unloader control, pressure regulator and a three-way valve for use of full tank pressure or regulated air. The portable unit comes in two models, No. B-140-CP with electric motor drive and No. G-140-CP with gasoline engine drive. Mounted on two wheels, weighing 130 lb and measuring approximately 3 1/2 by 2 1/2 by 1 1/2 ft, the portable models have a displacement of 2.6 cfm at 125 psi.

P179. Hydraulic Jacks

Specifically designed for use on trucks having higher axles and larger tires, four new model, heavy-duty, hydraulic jacks are being made by Auto Specialties Mfg. Co., St. Joseph, Mo. They are available in 3, 5, 8 and 12 ton capacities. The higher height of these jacks is demonstrated by comparison with the standard 3-ton jack. This has a low height of 8 1/2 in. and an extended height of 17 5/8 in. The 3-ton jack in the new line has a low height of 10 in. and an extended height of 20 5/8 in.



P180. Piston Expander

The Pedrick Kam-Knurl, a precision machine for expanding piston cam diameters and producing a notched or knurled surface on the thrust faces of the piston skirt, has just been announced by Wilkening Mfg. Co., Philadelphia. Controlled by air pressure, the machine operates by squeezing, rolling and swaging between two roller knurls, one on the outside of the piston and the other acting as a roller anvil on the inside. The anvil face is serrated to keep the piston from slipping or sliding during operation. Both thrust faces of the piston can be knurled without removing it from the chuck, which holds pistons from 2 to 6 in. in diameter.

P181. Reefer Units

Two new refrigeration units have been designed by Allen Cooler Division, Production Planning Co., Detroit. The Model AE-10, for truck bodies from 10 to 14 ft long, and the Model No. AE-18, for truck and trailer bodies from 14 to 20 ft long, incorporate many of the features of the manufacturer's larger units. Operated by a separate gasoline engine, the units are designed to maintain set temperatures from a low of five degrees below zero to 55 deg above. A switch control converts from cooling to heating. For use in standby operation, equipment may include an electric motor for plugging in on available electric current.

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P182.

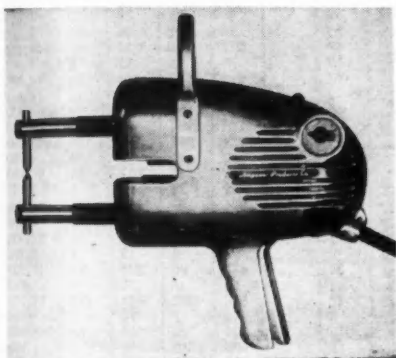
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P183.

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The latest developments in parts, accessories, equipment and tools for the fleet shop

FILL IN CARD WITH APPROPRIATE NUMBERS FOR MORE INFORMATION

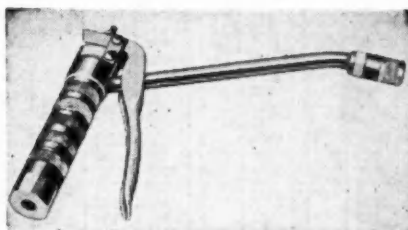


P182. Spot Welder

A low cost spot welder that will handle both aluminum and stainless steel has just been announced for truck and bus shops by Ampower Products Co., Oak Lawn, Ill. The welder, which will handle up to 3/16 in. combined thickness, has an electronic timing switch enclosed within the unit's housing, eliminating the need for a wall timer. The control has a range from 1/60 to 1 sec. The transformer, switch and controls are all contained within an aluminum housing, which has a pistol grip handle for easier operation. Standard models have a throat depth of 7 in. with a 3 in. opening. Additional lengths up to 18 in. are available with adapters. A stand for converting the unit to a foot-operated, floor model is also available.

P183. Trailer Stands

To prevent tipping caused by heavy front end loading, Joyce-Cridland Co., Dayton, Ohio, is now manufacturing a new adjustable semi-trailer support. Trail'R-Stans are used in pairs to support the nose end of trailers while they are being loaded. Portable, they are of all welded construction with angle iron legs with a steel base plate. Other features include height adjustment from 34 3/4 to 47 3/4 in., 5-ton capacity and a non-slip, swivel head cap designed to fit all trailer frames.

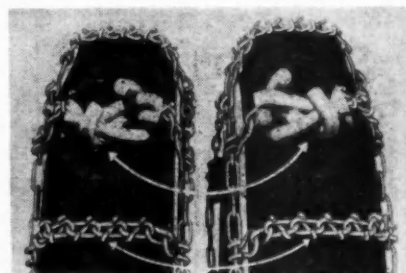


P184. Control Valve

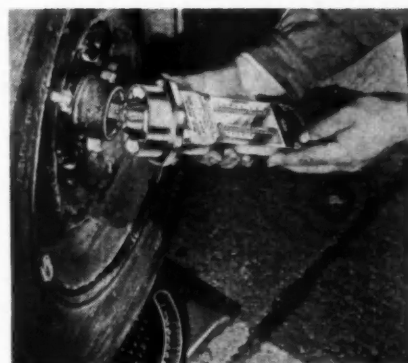
Model No. 60961 "Adapto" control valve being manufactured by Aro Equipment Corp., Bryan, Ohio, has been designed as a low cost replacement accessory for all makes of air operated high pressure pumps. A hand trigger grip gives ease of operation with simple adjustments. It has a curved nozzle. With an 1/8-in. N.P.T. female inlet, the coupler services all standard hydraulic fittings and accepts all standard Aro hydraulic adapters. Valve body disassembles into three sections giving access to valve seat and packing. Parts can be replaced from No. 71138 Parts Kit containing valve seat, packings, ball and ball retainer.

P185. Claw Tire Chains

Designed to grip and hold even on hard glazed ice, new design claw reinforced tire chains have been announced



by Columbus McKinnon Chain Corp., Tonawanda, N. Y. The claws face in opposite directions on each pair of chains guiding traction power straight forward. Either chain can be used on either tire. The opposite twist of the cross chains is claimed to prevent side skid. Driving acts as a whetstone, keeping the points of the claws sharp at all times.



P186. Aligning Tools

A set of three new tools for front end aligning have been announced by Snap-On Tools Corp., Kenosha, Wis. A caster-camber gage that attaches to the hub by means of a circular permanent alnico magnet provides a portable means of checking caster and camber. A spring loaded centering point contacts the axle turning hole and automatically centers the gage on the wheel hub. When in position on the wheel, the gage is leveled by means of a built-in cross bubble and the camber reading taken from the camber vial. The caster vial is adjusted by means of a knurled thumb screw and the direct reading is taken. Handles are provided for portability and hanging when not in use. The trammel bar, a 7-ft bar with traveling gage, is used to check front wheel toe-in.

P187. Door Latch

A new, small, push button, flush door latch has just been announced by Hartwell Aviation Supply Co., Los Angeles, Cal. The only exposed parts of the latch are the recessed, completely flush circular trigger button and close button. Finger tip pressure opens the latch and raises the close button for pulling open the door. The only cut-out required can be made with a drill. Weighing .7 to 2 oz depending on the material, it is available in stainless steel, cadmium plated cold rolled steel or aluminum alloy.

(TURN TO PAGE 182, PLEASE)

1952 New Truck Registrations by Makes by States*

STATE AND MONTH	Auto-car	Brack-way	Chevrolet	Diamond T	Divco	Dodge	Federal	Ford	FWD	GMC	International	Ken-worth	Mack	Peter-bilt	Reo	Sterling	Stude-baker	White	Willys	All Others	Total
Alabama	Sept. 10	4	380	1	150	157	23	2421	1281	102	8	128	12	391	14	11	972				
Arizona	Sept. 1		162	3	87	100	1	100	54	56	1	16	2	15	8	16	386				
Arkansas	Sept. 3		1379	8	2	632	2	992	620	507	9	1	21	161	48	171	4,612				
California	Sept. 2		451	12	129	176		2671	207	157	37	17	10	484	70	182	11,173				
Colorado	Sept. 10		1455	21	18	973	1	785	2	538	10	14	24	128	42	177	4,728				
Connecticut	Sept. 87	15	12592	219	174	7410	9	8065	67	4724	4053	186	257	172	45	1442	157	41,373			
Delaware	Sept. 1		328	1	5	116		144	97	129	5	64	22	303	45	383	24	8,021			
Dist. of Columbia	Sept. 2		2659	22	33	788	1	1821	6	875	957	16	9	36	16	18	563				
Florida	Sept. 27	31	1508	70	66	778	20	987	399	575	143	50	1	190	91	149	5,128				
Georgia	Sept. 6	9	64	21	6	209	3	538	146	187	13	2	2	56	25	19	1,823				
Idaho	Sept. 12	5	537	14	29	304	5	318	180	144	12	25	13	89	18	50	7,063				
Illinois	Sept. 20	3	462	4	5	208		213	124	144	11	15	74	817	209	551	16,338				
Indiana	Sept. 2		800	1	185	330		3123	1158	1284	204	11	2	75	15	13	2,777				
Iowa	Sept. 2	3	6169	42	20	2135	1	3863	1	1611	1608	136	5	813	143	208	16,803				
Kansas	Sept. 1		1367	10	4	565	8	1017	1	640	686	13	28	199	27	345	4,837				
Kentucky	Sept. 82	3	959	294	99	3587	16	6075	2	2069	372	117	10	79	1	764	159	26,342			
Louisiana	Sept. 11		483	3	9	222	1	335	4	1281	2292	99	71	862	365	217	15,881				
Maine	Sept. 11		484	1	125	251		3477	1	107	239	10	2	42	20	23	5,312				
Maryland	Sept. 1		3954	46	23	1234	3	2763	2	846	2008	1	33	391	102	193	11,658				
Massachusetts	Sept. 1		445	7	6	127	1	190	1	126	206	1	1	39	12	28	1,184				
Michigan	Sept. 1		4758	33	26	1419	2	3032	5	1567	2219	9	21	467	110	243	13,930				
Minnesota	Sept. 2		483	4	3	143	1	247	2	126	174	4	4	67	6	15	1,276				
Mississippi	Sept. 2		3804	35	19	1260	6	2593	4	1152	1323	33	33	461	80	294	11,132				
Missouri	Sept. 3		558	4	163	331		178	178	193	4	4	2	55	7	23	1,519				
Montana	Sept. 3		3881	31	10	1270		2838	1278	1177	54	1	12	518	86	193	11,371				
Nebraska	Sept. 1		119	3	5	404	8	878	88	114	10	6	6	26	7	10	524				
Nevada	Sept. 1		1163	3	5	404	8	878	478	519	81	18	1	172	28	156	3,941				
New Hampshire	Sept. 1		242	3	7	118	3	96	73	90	5	11	1	28	10	11	702				
New Jersey	Sept. 51		2180	15	80	1067	18	1487	3	512	860	102	38	199	118	100	6,915				
New Mexico	Sept. 11		300	12	20	140		211	2	83	107	18	8	60	26	24	1,035				
New York	Sept. 91		2749	79	117	1457	16	2047	6	683	1012	220	69	356	233	194	9,471				
North Carolina	Sept. 1		1086	13	26	391	19	575		261	243	8	20	76	31	59	2,819				
North Dakota	Sept. 29		7945	84	173	3306	73	7595	2067	1587	105	186	8	532	185	343	24,302				
Ohio	Sept. 1		503	4	10	187		241	114	220	6	6	8	66	10	23	1,397				
Oklahoma	Sept. 1		4081	59	44	1456	4	2785	18	953	1950	1	61	458	95	225	12,290				
Oregon	Sept. 1		546	1	157	218		218	232	136	2	2	2	468	30	155	10,357				
Pennsylvania	Sept. 3		3957	5	2	1150		2320	2	1584	972	36	9	53	28	35	10,093				
Rhode Island	Sept. 11		6267	42	68	1954		3943	2	1984	2003	3	43	551	311	231	17,516				
South Carolina	Sept. 1		210	1	87	137		137	67	115	6	2	4	40	7	52	728				
South Dakota	Sept. 1		1606	26	7	483	1	1226	4	518	865	34	22	259	34	454	5,565				
Tennessee	Sept. 1		346	8	67	172		172	108	173	1	2	1	57	16	41	992				
Texas	Sept. 1		3131	87	12	677	2	2174	9	949	1479	43	28	357	118	359	9,466				
Utah	Sept. 1		35	1	28	29		31	157	142	7	4	2	47	2	80	1,242				
Vermont	Sept. 1		396	4	197	206		206	157	142	7	4	2	47	2	80	1,242				
Virginia	Sept. 1		54	2	27	31		31	14	12		3	1	3	3	9	162				
Washington	Sept. 4		651	6	12	234	2	450	2	179	236	57	13	68	35	126	2,082				
West Virginia	Sept. 8		312	5	17	172	2	231	123	165	26	10	10	16	21	30	1,164				
Wisconsin	Sept. 88		3945	67	139	1900	33	3143	14	1304	1503	286	66	338	281	296	13,657				
Wyoming	Sept. 13		168	1	57	104		104	63	42	8	6	1	26	1	17	468				
Total	Sept. 13		1643	41	1	483	1	1116	6	561	405	3	82	254	43	145	12	4,773			
Total	Sept. 19		1078	1	12	585	7	784	2	291	534	94	60	100	90	92	37	3,869			
Total	Sept. 156		8557	311	196	4579	85	5762	35	2468	3618	775	348	706	636	630	233	29,609			
Total	Sept. 2		597	8	3	246		270	184	336	21	21	1	68	29	50	1,817				
Total	Sept. 24		5963	46	42	2125	8	3509	1	1600	1993	200	24	764	283	340	44	16,971			
Total	Sept. 13		1376	6	3	447		1145	5	324	1038	4	3	180	9	127	4	4,671			
Total	Sept. 13		1062	10	31	404	2	460	3	284	386	22	18	130	59	62	13	2,872			
Total	Sept. 45		8016	82	175	3788	57	5802	7	1992	3289	210	176	994	671	686	141	26,116			
Total	Sept. 1		448	5	6	168		220	4	145	210	1	2	54	21	22	1	1,396			
Total	Sept. 6		4769	5	27	1460		3194	37	1350	1848	3	55	497	205	194	39	13,714			
Total	Sept. 4		277	12	2	150	4	155	112	174	18	15	5	20	13	119	31	1,118			
Total	Sept. 16		2465	121	21	1234	20	1689	4	1083	1329	104	180	270	135	661	145	9,865			
Total	Sept. 15		849	25	20	480	12	494	230	458	73	50	24	129	57	45	4	2,865			
Total	Sept. 149		8768	140	169	4594	59	5751	16	2332	3848	566	196	985	591	501	117	29,168			
Total	Sept. 3		53	1	34	42		42	9	17	9	9	5	3	2	1	1	181			
Total	Sept. 24		453	6	15	273		453	91	215	47	14	61	38	25	4	1,728				
Total	Sept. 1		310	1	2	122		115	98	53	9	9	39	11	6	1	768				
Total	Sept. 9		3484	15	8	973	6	1811	2	790	990	94	2	338	95	77	44	8,739			
Total	Sept. 1		98	3	35	85		85	82	100	100	1	13	13	25	25	4	4,314			
Total	Sept. 1		1169	39	2	416	1	933	5	333	1027	1	6	153	10	187	4	4,314			
Total	Sept. 1		481	2	1	153	2	213	138	187	6	6	4	41	7	9	13,036				
Total	Sept. 21		4478	25	14	1607	49	3023	1	1445	1356	97	17	537	172	181	13	7,130			
Total	Sept. 27		2437	17	16	930	3	1339	2	782	890	13	50	318	145	133	14	7,130			
Total	Sept. 126		16888	125	82	5806	11	11748	4	5895	5400	38	324	2108	982	896	112	52,501			
Total	Sept. 1		1179	25	8	281	10	865	4	406	472	26	39	89	41	162	29	3,689			
Total	Sept. 2		56	1	23	24		24	24	18	14	2	2	7	7	16	1	174			
Total	Sept. 2		578	7	4	246	4	301	4	224	248	14	11	68	6	160	24	1,919			
Total	Sept. 2		462	2	6	161	1	230	129	151	32	6	6	66	16	46	4	1,316			
Total	Sept. 21		4498	19	47	1858	17	3017	23	1259	1515	137	59	567	181	326	24	8,686			
Total	Sept. 1		251	2	2	125		168	94	153	7	13	1	22	7	39	2	1,371			
Total	Sept. 21		2386	52	12	1424		1748	2	974	1143	51	83	232	100	366	3				

9	972
11,610	
568	
39	4,612
1	1,173
11	12,142
4	1,728
157	41,573
2	911
24	8,021
663	
40	5,128
11	1,337
1,823	
206	
7	1,683
15	1,350
169	14,338
2	1,777
19	16,800
619	
3	4,937
3,130	
259	28,342
1	1,690
56	15,983
5	1,312
33	11,650
3	1,194
19	13,930
1	1,276
33	11,132
1	1,519
19	11,371
3	524
18	3,941
1	702
52	6,915
4	1,035
57	9,471
2	2,819
87	24,302
5	1,387
41	12,250
1	1,357
10	10,683
5	1,754
41	17,516
1	729
3	5,365
22	9,450
1	1,337
1,242	
162	
2,092	
12	1,164
13,657	
408	
4,773	
37	3,880
233	29,680
1	1,817
44	16,571
1	2,987
4	4,671
13	2,972
141	26,116
1	1,306
39	13,714
31	1,116
145	9,562
4	2,965
117	29,109
1	1,011
4	1,720
1	768
44	8,739
4	411
4	4,316
13	13,036
14	7,130
112	52,501
1	3,343
29	3,099
1	174
24	1,910
4	1,310
24	13,571
2	886
35	8,626
4	434
30	5,776
7	1,302
89	12,353
4	3,223
241	65,391
254	84,814
2370	594,233
2001	772,436

CCJ's Truck Specifications

COMPILED FROM DATA SUPPLIED EACH MONTH BY MANUFACTURERS

KEY TO DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED

GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are

those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the

weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse.
C—Chevrolet.
Cl or Cla—Clark.
Com—Continental.
Cum—Cummins-Diesel.
Ea—Eaton.
F—Ford.
Fu—Fuller.
G-H—Goodyear-Hawley type.
H—Hotchkiss.
Her—Hercules.
HS—Hall-Scott.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LT—Lockheed type front, Timken rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ov—Over.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer.
T or Tim—Timken-Detroit Axle Co.
TW—Timken-Detroit—Westinghouse.

TW—Timken-Detroit—

Wisconsin.
Var—Variable.
WG—Wagner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
Wg—Wagner "hi-Tork."
Ws—Westinghouse.
WW—Westinghouse or Wagner

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
6—All wheels.

BRAKES—SERVICE

Location:
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type

I—Internal.
X—External.

Operation

A—Air.
H—Hydraulic.

V—Vacuum.
D or Dp—Dual Primary.

BRAKES—HAND

Location:
C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.
F—Mechanical, foot operated

BRAKE DRUMS

Material:
a—Cast alloy iron.
c—American Car Foundry.
e—Cast iron.
cc—Composite Front, Cast Iron in rear.

C—Centrifuge.
Cl—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type:
C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with both liner and fishplate.
B—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center.
Tf—Tapered front.
A—Straight section sidemembers, lined with oak inserts.

Z—Reinforced (X) member frame, box type sections.

REAR AXLE

Final Drive and Type

R—Bevel.
CD—Chain Drive.
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
3/4—Three Quarters Floating.
1/2—Semi-floating.
T—Torque Tube.

GEAR RATIOS

(**) Only one ratio.

Drive and Torque

H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods.
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Ford or Chevrolet Models.
(R)—Remanufactured Fords.
*—Denotes "Includes Cab" when used with weights or prices.

BROWN

*—All six engines listed are available on all five models of trucks.
*—Steel frame only. Also available with Aluminum frame 10x3 1/2 x 1 1/2.

*—Many variations available with Fuller or Spicer transmissions.

CHEVROLET

†—Forward control chassis for Door-to-Door delivery bodies. These chassis do not have cowl.
*—Includes spare tire, full fuel tank and cooling system.

*—7.50/20 can be used on the front with no decrease in G.V.W. when 8.25/20 are used on dual rear wheels.

*—Own Loadmaster engine available at extra cost.

*—8.25/20 front tires are required when 9.00/20 dual rears are used.
††—Diameter: (Average) Front, 2.6858; Front Center,

2.7168; Rear Center, 2.7478; Rear, 2.7788. Total Length 5 1/4.
†—4 speed transmission available.
††—Also available in 5.14 ratio.
†††—5.43 available.
††††—Two speed axle available.
†††††—8 1/2 x 2 1/4 x 1 1/4 is used with heavy-duty equipment.

CORBITT

*—Available with optional tires and axles for less G.V.W. rating.
††—Also available with Cummins HRB 600, HRBB600 and NHB600.

DODGE

*—Front only: Rear 7.00/16S.
*—Front only: Rear 8.25/16S.
*—Front only: Rear 7.50/20.
*—Front only: Rear 9.00/20.
*—Front only: Rear 10.00/20.
†—Rear of transfer case.

††—Truck - O - Matic transmission available.

*—Twin carburetion.
*—Two speed rear axle available.

DUPLEX

†—Torque Divider, Timken T70-2 speed.

FEDERAL

*—Diesel engine obtainable.
*—Five speed transmission obtainable.

†—Auxiliary transmission Spicer 6231B with 3 forward speeds.

†—Auxiliary transmission Spicer 703F with 3 forward speeds or 8031.

†—55M, 60M and 65M have single speed, double reduction rear axle.

††—Radius rods obtainable.
†††—For wheelbases below 196" — 9 x 3 x 1/4.

††††—For shorter wheelbases, 10 x 3 1/2 x 1/4.

†††††—Diesel engine obtainable.
††††††—Overdrive optional.

†††††††—Torque Divider, Timken T70-2 speed, T50 obtainable.

††††††††—8W3013 obtainable.
†††††††††—8W3010 or SD3020 obtainable.

††††††††††—Rear only.
†††††††††††—With R series rear axle, reduce G.V.W. by 4000 lbs.

FORD

—Air brake equipment optional on F-8. Front 16 x 2 1/4. Rear 16 1/2 x 5 1/2. Lining area 533 sq. in.

*—Reinforcement 6.58 x 2.21 x .125 extended to include front spring rear brackets and rear spring front brackets.

†—Reinforcement 8.5 x 2.56 x .15 starts at rear of front spring rear brackets and ends behind rear spring front brackets.

FWD

*—Four wheel steering.

KENWORTH

††—Timken T13129 PA Trail-ing Axle.

OSHKOSH

*—Includes cab.
*—1091 cu. in.

*—Hydraulic coupling.
††—Buda 61DC844 opt onal.

*—Other Cummins 6 cylinder engines optional.

*—Includes cab and dual tires on front, center and rear axles.

*—Dependent upon engine.

REO

*—Model 331-OA and 331-OA LPG engines can be furnished.

†—Two speed axle available.

*—Double reduction and 2 speed available.

*—Buda 61DTS-468 diesel engine available.

STERLING

†—Rear only: Front 11.00/24.

††—Rear only: Front 11.00/22.

*—Own EJ three speed auxiliary transmission furnished.

†—Timken T70 two speed torque divider furnished.

††—Parking brake at rear of auxiliary transmission.

*—Rear only: Front 12.00/24.

*—Rear only: Front 14.00/24.

*—Rear only: Front 16.00/24.

*—1125 cu. in.

††—Own model FJ three speed auxiliary transmission furnished.

†††—Timken T76 two speed transfer case furnished.

††—Timken T77 two speed transfer case furnished.

†††—Parking brake at rear of transfer case.

††††—Tapered, 9 x 7 x 3 1/4 x 1/4.

†††††—Also available with Cummins Diesel engine and appropriate transmission.

STUDEBAKER

*—Two speed 6.13-8.10 and H.D. 6.20 or 6.80 optional.

††—Two speed 6.13-8.10 optional.

TRUCKSTELL

*—Single front, dual rear.

††—With 2 speed auxiliary transmission.

†††—With 3 speed power divider.

*—2 speed locked in low axle ratio.

††—Including slip-over reinforcing frame channels.

†††—Air brake optional.

WARD LA FRANCE

†—Available with optional rear axles.

††—Available with 11.00/22 or 12.00/20 tires for G.V.W. of 60,000 lbs and optional front and rear axles.

†††—Auxiliary transmission Fuller 3A65, 3B65, 3A92 and 3B92.

WILLIS

*—Complete vehicle-Pick-up Type body.

††—Three speed transmission, 2 speed transfer case.

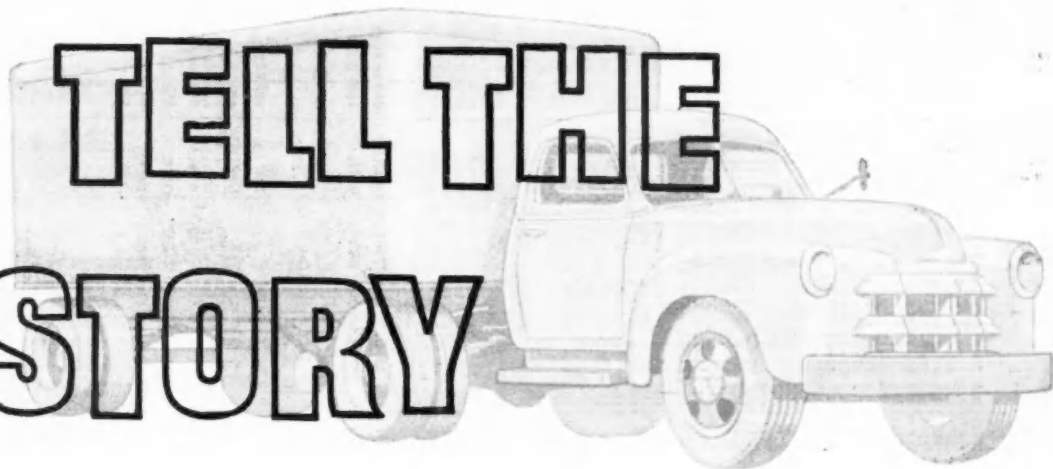
†††—Or Spicer 53-2 at discretion of manufacturer only.

*—Complete Vehicle.

(Turn to Page 80, Please)

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TON MILES TELL THE STORY

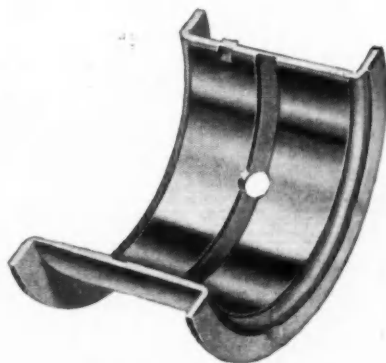


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See Key to References and Abbreviations See Page 77

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SAFETY: Completely enclosed, automatic filling system makes Philgas safe and easy to use. No spilling, no evaporation, no waste. And no smelly fumes or exhaust smoke, either!

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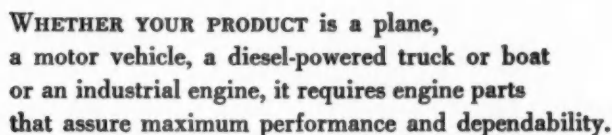


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(Continued from Page 86)

Line Number	MAKE MODEL	Chassis List Price	WHEEL BASE		Gross Vehicle Weight	TIRE SIZES		ENGINE DETAILS					TRANS-MISSION		REAR AXLE		FRONT AXLE	BRAKES				Type							
			Minimum	Maximum	For Normal Service	Standard	Dual rear S-single rear	No. of Cylinders	Stroke	Displacement	Max. Brake H.P. at R.P.M.	Number and Diameter of Bore and Length	Governor Standard	Model and Make	Forward Speeds	Model and Make	Gear and Type	Drive & Torque	Range in High	Make and Model	Location Type	Operation	Lining Area	Drum	Material	Hand Location	C-A Dimensions (Min. Std. W.B.)	Side Rail Dimensions	FRAME
1	F.W.D. H-6C	131509	100/20	100/20	3000	10.00/20	10.00/20	6-4	4.5	4015	130-3000	2-3 1/2 x 13	Y	H	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
2	H-6C	136209	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
3	H-6C	139009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
4	H-6C	141009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
5	H-6C	143009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
6	H-6C	145009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
7	H-6C	147009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
8	H-6C	149009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
9	H-6C	151009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
10	H-6C	153009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
11	H-6C	155009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
12	H-6C	157009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
13	H-6C	159009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
14	H-6C	161009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
15	H-6C	163009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
16	H-6C	165009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
17	H-6C	167009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
18	H-6C	169009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
19	H-6C	171009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
20	H-6C	173009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
21	H-6C	175009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
22	H-6C	177009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
23	H-6C	179009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
24	H-6C	181009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
25	H-6C	183009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
26	H-6C	185009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
27	H-6C	187009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
28	H-6C	189009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
29	H-6C	191009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
30	H-6C	193009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
31	H-6C	195009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
32	H-6C	197009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
33	H-6C	199009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
34	H-6C	201009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
35	H-6C	203009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
36	H-6C	205009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
37	H-6C	207009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
38	H-6C	209009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
39	H-6C	211009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
40	H-6C	213009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
41	H-6C	215009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
42	H-6C	217009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
43	H-6C	219009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
44	H-6C	221009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6	73	9x3 1/2	CT
45	H-6C	223009	100/20	100/20	3500	10.00/20	10.00/20	6-4	4.5	4255	172-2600	3-3 1/2 x 13	Y	Ow	10	Ow	H	SF	L	7-45	H	W61HV	W61HV	673	130a	6			

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COMMERCIAL CAR JOURNAL, December, 1952

Oil Filters and Engine Wear

Continued from Page 65

oil he has often been disputed but we believe that tests conducted over a period of years, more of which will be given factually later, generally proved that the most significant job of the filter is to remove wear-produced material such as metallic chips and other harmful contaminants. Contaminants in lubricants such as colloidal size

particles of carbon, resins, or oil oxidation products, are no problem if the concentration of the detergent is high enough to keep them suspended. As a consequence, color-clean filtration is of no material importance. The prevention of the entrance into the engine of unusually high concentration of colloidal contaminants suspended in the

oil which might possibly dangerously increase the viscosity of same.

To prevent accelerated abrasive wear, oil filters should remove all solid foreign matter exceeding the thickness of the oil film separating the moving parts, depending on load, speed, running clearances and oil viscosity. The size of small particles is usually quoted in "Microns," one micron being one thousandth of a millimeter or roughly four hundred-thousandths of an inch.

Fig. 1 shows a comparison of these two scales. Normal automotive engine clearances extend over the range from one-half thousandth to four thousandths of an inch, equivalent to twelve and one-half to one hundred microns. It is estimated the oil film thickness varies from two ten-thousandths to four ten-thousandths of an inch, approximately 5 to 10 microns. To minimize wear, elimination of all abrasive particles exceeding five to ten microns in size appears therefore desirable. In a new condition metal strainers will filter out particles as small as 75 microns, cloth bag strainers down to 35 or 40 microns. They will trap larger particles of dirt or metal chips effectively but cannot be relied upon to eliminate most of the wear-producing fine solids.

In an effort to determine in our laboratories more accurately the effectiveness of the multifold paper micron full-flow element, a series of samples of detergent oil lubricating an engine equipped with a full-flow filter were examined electron-microscopically. It was found that the contaminant particles were .10 to 1.0 microns prior to filtration and less than 0.1 after filtration.

Profile Graph of Wear

IN connection with the problem of evaluating filter effectiveness, reference is made to Fig. 2 which is a comparative profile graph across bearing surfaces after test with different degrees of filtration. The length of each probe was $\frac{1}{4}$ in. It is noted that in Trial 1 wherein tests were conducted without oil filters or air filters, an extremely jagged line was obtained on this comparatively short length of bearing surface.

Trial 2 was conducted with a dry type, highly efficient air filter and with no oil filter. Once again you will note peaks and valleys in the bearing surface.

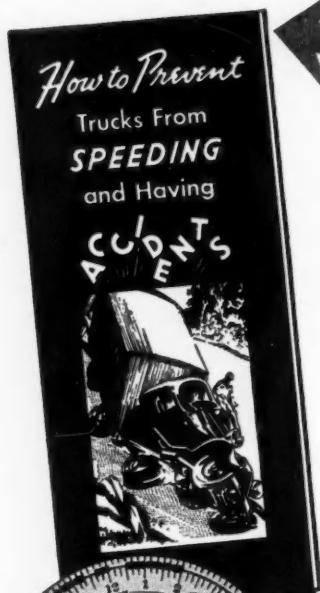
Trial 3 was conducted with the same high efficiency air filter and a partial flow oil filter. You will note here the improvement in the lessening of the peaks and valleys. It should be noted that Trial 3 was conducted with a high efficiency air filter and an older type low-flow, partial flow oil filter. Had a

(TURN TO PAGE 94, PLEASE)

Worried About That SPEEDING PROBLEM?



Then Write for This
HELPFUL FOLDER



SPEEDING is the "nightmare" of the truck owner who is trying to hold down his operating costs. He knows Speeding wastes gas, often ruins tires and unmercifully racks the motor—in every way greatly increasing the wear and tear on the vehicle.

But that isn't the worst!

ACCIDENTS!

Nearly all accidents are due to the driver speeding to make up lost time. And then, perhaps—CRASH!! A costly truck wrecked or a pedestrian maimed and a damage suit in the courts. That's why many insurance companies urge that *Servis Recorders* be installed by the trucking firms they insure. Write today for our folder—"How To Prevent Speeding." The Service Recorder Company, 1375 Euclid Ave., Cleveland 15, Ohio.

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Helps Prevent Speeding and Accidents

Complete Coverage

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● You'll get longer life, greater economy with Hastings Chrome—because each set is *Motor Engineered* for replacement service, for your specific requirements.

Motor Engineering brings you smooth, hard, cylinder-saving chrome where you need it . . . with the right combination of Hastings companion rings . . . for your make and model, for your engine conditions and operating needs.

For more than six years, leading fleet men have specified Hastings Chrome. They've found complete coverage in heavy-duty chrome sets. They're getting more miles per installation, greater operating economy.

Use Hastings Chrome on your next ring job.

HASTINGS

STEEL-VENT PISTON RINGS

Chrome Faced for Heavy-Duty Service

TWO CHROME COMBINATIONS FOR TRUCKS AND BUSES

Hastings 2C Sets are recommended for re-ring, re-sleeve and re-bore. Each set is *Motor Engineered* to the specific engine, and each incorporates the famous Steel-Vent Chrome oil ring. Companion rings include regular and chrome types, depending upon the operating characteristics of the engine. In Hastings 2C, you have one set which handles every cylinder condition.

Hastings CT sets—for those who prefer chrome top compression rings and cast iron oil rings—for re-bore and re-sleeve installations. The top compression rings are chrome-faced. Other rings are cast iron type. Oil rings are either plain cast iron or inner-spring type, depending upon operating characteristics of the engine for which the set is *Motor Engineered*.

HASTINGS MANUFACTURING COMPANY
HASTINGS, MICH.; HASTINGS LTD., TORONTO
Piston Rings, Spark Plugs, Oil Filters, Caste, Drout

Oil Filters, Engine Wear

Continued from Page 92

higher flow, partial flow oil filter been used, this bearing wear would have been further reduced.

Trial 4 is an indication of what could be obtained with a high efficiency air filter and full flow oil filter. The tests indicated on this figure are some years old and we are proud to state that the indications given in Trial 3 and Trial 4 using modern high flow, partial flow

oil filters and/or the still more modern micronic type full flow oil filters, shows surface conditions are materially improved. As a matter of fact, it has been definitely proven that Trial 4 utilizing the most modern type of filtration equipment, is for all practical purposes a straight line.

In Summary

IN AN investigation of the internal wear in an engine, it is seen that the lubricating oil plays a very important role. The oil film picks up foreign contaminant particles that are intro-

duced into the engine through manufactured dirt, compounds formed in the process of burning fuel, air entering the engine as part of the combustion process and for ventilation purposes, and products formed from the deterioration of the oil itself, when exposed to high operating temperatures. Whether or not there would be engine wear when all of these sources of contaminant have been successfully isolated, would depend a good deal on the ability of the oil to lubricate, and on the engine design to provide this oil supply in a manner suitable for the lubrication of each part of the engine. The data presented shows some of the factors that tend to increase wear in an engine. Since the lubricating oil has played such an important role, data has been shown on the effective control that the use of the different systems of oil filtration can accomplish.

The full-flow oil filter of this era is recognized as being by far the best method for restricting wear in an engine emanating from contaminants that get inside the engine. These are limitations on how much the full-flow filter can do today.

Certainly the fact is known that all of the wear which takes place within an internal combustion engine is not entirely due to dust. However, the less contaminants permitted within an engine, the greater will be its life. Data presented previously proves rather extensively that cylinder wear and bore wear are directly connected with the amount of material that will pass through an air cleaner. Where an air filter will permit practically no contaminant to enter the engine, it is obvious that upper cylinder wear will be diminished as will be the top ring, second ring gap increase and as a consequence maintain to a greater extent the compression pressure and decrease blow-by.

One thing which has not been touched upon today is the use of controlled air flow properly filtered crankcase breathers. This is an important feature in the operation of any engine and it is highly possible to produce a filter for this application which will give better than 99 per cent efficiency thereby permitting less contamination to enter by this means and likewise by better controlling the flow of air to reduce the amount of oxidation of the oil within the crankcase.

END

Please Resume Reading Page 66

"Motor Carrier Cases, Volume 52" covers ICC decisions August 1950 to May 1951, available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. The price of the 945 page book, catalog No. IC I mot.8:52, is \$3.50.

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***SHELL RETINAX A GREASE** . . . a superior new multi-purpose grease for all types of heavy-duty automotive vehicles. It does the job of four or more specialized greases—yet only one gun is required.

Recommended for chassis (*all points*), wheel bearings, universal joints, and water pumps. Shell Retinax A gives you better protection against wear and washing out.

***SHELL SPIRAX EP†** . . . an exceptional "alloy type," Extreme Pressure gear oil. Shell Spirax EP is recommended for rear axles of the hypoid, spiral bevel, and spur gear types, as well as for heavy-duty transmissions. It is extremely stable . . . has long-lasting anti-rust and film strength properties. Results: longer gear life, lower maintenance costs.

***SHELL ROTELLA OIL** . . . for all engine lubrication, Shell Rotella Oil is a new, fortified, extra heavy-duty lubricant which has set new standards of performance in high-speed diesel and heavy-duty gasoline engines.

By maintaining clean engines and minimizing sludge formation, piston lacquering, ring and valve sticking, and port clogging, Shell Rotella Oil extends periods between overhauls, reduces parts replacement costs, and gives you reduced oil consumption.

†Some manufacturers recommend a straight mineral oil for gear lubrication. Your Shell Lubrication Engineer will suggest the proper lubricant in such cases.

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100 Bush St., San Francisco 6, Cal.

Please send me literature describing the 3-Barrel plan of lubrication.

Name

Company

Address

Conversion Problems with L P Gas

Continued from Page 52

Units Installed

THE next step was to make mounting brackets for the vaporizer and filter. Fig. 5. This equipment should be as close to the carburetor as possible with very short hoses, yet must be below the top of the radiator core. It should be so located that the head can be torqued

and valves adjusted without first removing hose lines, Fig. 5. Then if the head has to be removed, all the vaporizing equipment can come off as one unit.

When reassembly was started (after traces of grinding residue had been removed) the head was placed on the block without a gasket. This was done to see if the pistons struck the head and

to see if the valves opened completely without hitting the block. In this case the head did not raise over .020 in. as the pistons hit the top of the combustion chambers. We feel that .020 in. is the maximum raise possible. The head gasket will provide this amount of additional space.

With final installation of head (and gasket this time) the studs were torqued to manufacturer's specifications. Next came the various lines. We have found that a short piece of flexible fuel line from the filter to frame will save a lot of future trouble from cracked flares. The fuel line from the vaporizer to carburetor was 1 in. (inside diameter) neoprene hose. Oil and grease will not soften this material. Water connections to the block were made of similar material to maintain an adequate water flow under heavy loads.

Engine Tuned

AFTER installation was completed, the engine was started using preliminary carburetor setting as recommended by the manufacturer. The engine was allowed to warm up; then the head was torqued again and the valves adjusted.

For final carburetor setting a tachometer was used. With the choke control pulled out and the throttle wide open the starting mixture was set just past the peak rpm on the rich side. Next, at idle speed the idling mixture was set.

To set the timing, the distributor clamp was loosened and the throttle opened up to 2000 rpm; the power mixture was set to peak speed, and the distributor was advanced until the rpm started to drop. Then the distributor was retarded until the rpm dropped 10 revolutions and was locked in place.

To set the power adjustment all cylinders but one and six were shorted out. The throttle was opened until the rpm was between 1800 and 2000. At the peak speed the power adjustment was locked from $\frac{1}{4}$ to $\frac{1}{2}$ turn on the rich side. The throttle was closed and the short out wires removed.

For the economizer setting, the throttle was opened to 1800-2000 rpm (with all cylinders firing) and economizer adjustment was turned toward the lean side until the rpm fell 50 revolutions, then was locked in position. Last, the idle speed and idle mixtures were rechecked.

For a final road check, after a vacuum gage and tachometer had been installed for the driver's use, an L P Gas exhaust analyzer was connected. On the road driving with 10 to 15 in. of vacuum

(TURN TO PAGE 98, PLEASE)

THE BIEDERMAN TRUCK



*An All-Star Truck
Constructed of All-Star Units
Doing an All-Star Job Since 1920*

DEALERS: Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

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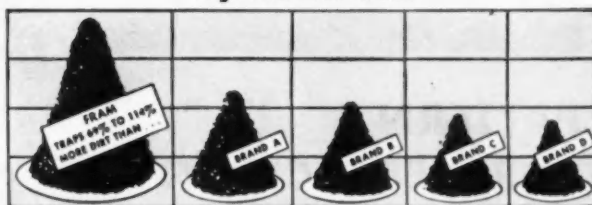


FRAM is the only filter manufacturer to offer you *positive proof of superiority!* (See chart below.)

Fram gets oil *cleaner*, cleans it *faster*, keeps it clean *longer* than any other cartridge... to assure you *better* engine operation, *longer* engine operation and *lower* cost per mile!

There's a Fram Cartridge to fit most every make oil filter... *guaranteed best you ever bought* or your money back! Switch to Fram today... you'll be glad you did!

FRAM *FILTERS* BEST by actual test



Laboratory tests prove conclusively that Fram traps from 69% to 114% more dirt than other cartridges tested. *Fram's best for fleets!*



FRAM CORPORATION,
Providence, 16, R. I.
In Canada: J. C. Adams
Co., Ltd., Toronto, Ont.

LP Gas Conversion

Continued from Page 96

the analyzer read 14 to 1. This reading should never be leaner than 14.5 to 1. When the vacuum gage dropped below 6 in. the exhaust analyzer read between 13.0 to 1 and 13.5 to 1. With careful shop practice we have found little or no road adjustment is needed.

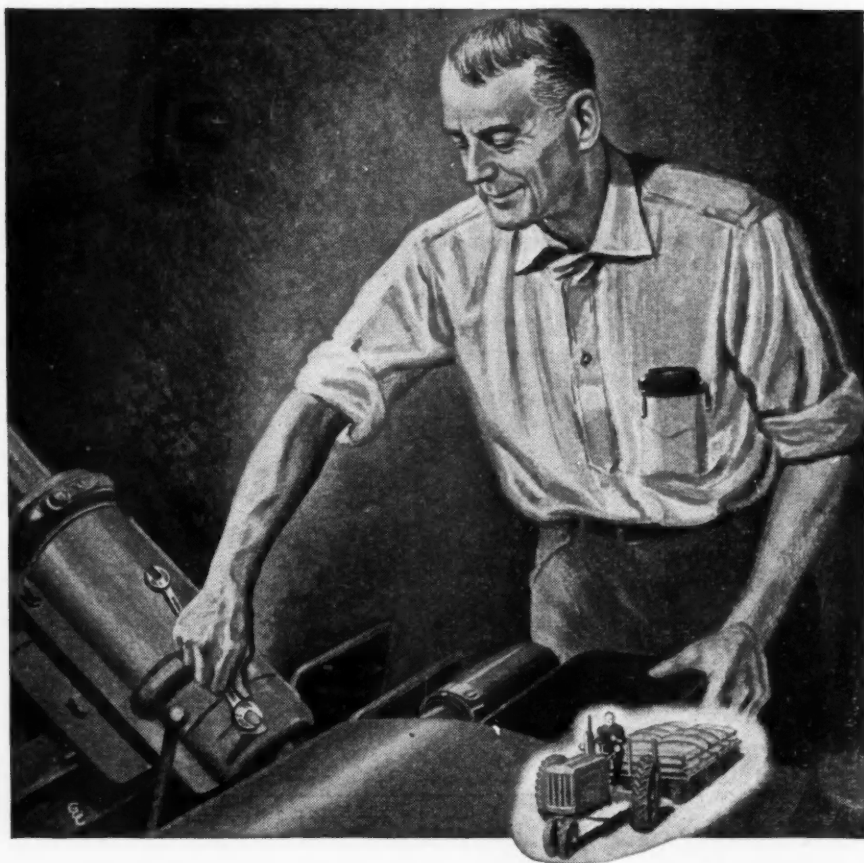
In the past we have had some trouble in getting the rings to seat and with pistons scoring during the break-in

period on propane because of close tolerances. To give this engine a good breaking in and to check it for defects, it was driven 3500 miles on gasoline before conversion.

Today this particular GMC has gone 18,000 miles since the block was replaced. It averages 7 miles per gallon on propane which is excellent for its particular job and present winter road conditions. The performance is good and the rings have seated.

END

Please Resume Reading Page 54



PATTERN FOR PERFECTION...

The best of materials, strict standards of workmanship, the finest tools—this is the real mechanic's pattern for perfection. Naturally, you, as a real mechanic, quickly recognize the work of others who measure accomplishment by the same standards.

Bonney wrenches fit this pattern of perfection. That is why mechanics call them America's finest—unmatched for lightness, strength, balance, and precision.

Bonney wrenches are the pride of the men who make them . . . the pride of the men who use them.



The skilled mechanic whose constant concern is with this pattern for perfection is exemplified in the men who produce the versatile tractors made by Buda, Case, Allis-Chalmers, Caterpillar, John Deere, Minneapolis-Moline, Oliver, and others.

BONNEY FORGE & TOOL WORKS • ALLENTOWN, PENNSYLVANIA

Madison Buses . . .

Continued from Page 56

was made out of two rubber tired wheelbarrow wheels and some band iron. The cart, which is the same height as the batteries in the bus, is wheeled up and held in position by leaning over the handle. By using the cart as a lever, the mechanic can then slide both batteries and the carrier out on it. They are replaced in the same manner. Fig. 10.

The battery testing and charging set, Fig. 10, is made up of a bus generator driven by a 7½-hp motor. Batteries are left on this constant potential set until ready to be used. When all connected batteries are fully charged, the cut-out opens. The set of lights, shown in Fig. 10, furnishes a test load of 30 amp. If a fully-charged battery will carry this load for three and a third hours and still show 9.5 volts or better, the battery is considered OK. It is then put back on the charger until needed.

The two company-designed bus washing racks permit 3 men to wash 21 exteriors and 3 interiors a day, compared to about 5 a day under the old system. Fig. 11 shows the air and water gun used on radiators. The nozzles are worn Zerk fittings (minus the valves) with a saw cut across the end. Buses are first sprayed, Fig. 12, and the water is then shut off and the drain valve opened to prevent dripping. The exterior, except the top, is then brushed with a water and detergent solution. Then it is rinsed and allowed to dry without wiping. A chamois is used only on the interior windows. An air and water gun is used to wash dirt and bugs from the exterior of the radiators at this time.

Madison Bus solved the problem of sticking accelerator, shaft and hand brake rods by enclosing them in electrical loom which had previously been soaked in paraffine. A hole was drilled through the front end to remove the rods. Then they were cleaned, lacquered, dried and the full length installed in treated loom. The body hole was closed with a short carriage bolt. The newer buses have boots but loom was added anyway. Now there isn't any sticking even when the entire underside of the bus is coated with ice.

END

Please Resume Reading Page 57

Road Failures

Continued from Page 57

interested in holding down repair expense on their units as we were. We were particularly pleased in the improvement we found in "curbing tires," and from "gunning" in stop and go service.

Special Equipment Training

WE have some 75 pieces of special equipment such as dozers, cranes, and especially equipped trucks. All new operators for this equipment start in our shop, where they are assigned as an assistant to work under a trained mechanic on a similar piece of equipment.

In this way the operator learns what has to be done to the piece of equipment in the way of regular maintenance by seeing the work done and doing it himself. He also learns by studying the job report what different repairs cost and how much lay up time is involved.

During this training period in the shop, the new operator is under the supervision of the garage foreman. Likewise when he is assigned as operator of a unit, he remains under this same supervision. By having the new man under the supervision of one man we can study his operation habits better and make wiser corrections.

Employee Suggestions Recognized

THROUGH closer cooperation between management and employees we are able to bring out from our drivers and shop men various operation ideas which make for better operation. In each case the man coming up with the idea is given credit for it on his employment record. These marks of extra merit are considered by our department in making recommendations for promotion. And when these promotions come through, the employee is told why and what has gone into making this special recommendation.

When an employee saves the company money, whether he be in the wash and grease service department, a mechanic, or a large unit driver, we want him to know that what he has done has been given recognition.

The proof of the success of any maintenance program is the record on road failures.

Our maintenance cost is down. In the past five years we have had but one major road failure. In the past 60 months we have had but one accident due to a mechanical failure (a brake line broke).

END

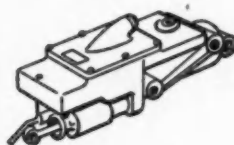
Please Resume Reading Page 58

COMMERCIAL CAR JOURNAL, December, 1952

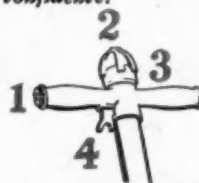
after 21 years, the S-4 STILL LEADS 'EM ALL

Here's why...

This brute was years ahead when introduced in 1931. No other jack has ever caught up to it. Blackhawk has continually added outstanding, exclusive refinements... so that today, as before, S-4 is the best all-purpose jack you can roll onto your floor. Order from your Blackhawk jobber... with full confidence!



ONE-PIECE POWER UNIT
has no seams or pipe plugs to leak. Ideal for wash rack use. Speed and power pump are combined to speed jacking time, eliminate parts and wear. And the exclusive floating plunger allows power unit to remain stationary, prevents distortion and leakage.



SEE WHAT FINGERTIP CONTROLS DO FOR YOU
(1) Press a button and flash a light on the lift spot. (2) Turn a key and lock or unlock the valve. (3) Twirl a knob for positive release valve action. (4) Pull a trigger and set the handle for any one of three convenient positions.



TO OWNERS OF VETERAN S-4 JACKS

Factory-rebuilt power units are available from country-wide stocks. Liberal trade-in allowance for your old unit. And you can install a new one yourself in 20 minutes!

All-purpose
4-ton Capacity

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What's New—in Tires?

Continued from Page 68

the cards. One of the problems facing tire builders is the increased average speed of trucks, which tends to reduce tire life. Tire engineers point out that, whereas on one hand much more rigid enforcement of axle loading restrictions permits the use of heavier tread truck tires with their consequently greater life, higher speeds take away some of

this advantage. Nonetheless, development work under way and designs already on the road seem to have firmly established the heavier tread and high shoulder as a definite trend.

Researchers in rubber are more confident than ever that sooner or later a synthetic rubber not only equal to, but probably superior to, natural rubber

and entirely suitable for large truck tires will be developed in the laboratories. In fact, they are looking at a couple now that have very definite promise in that direction, but it still is too early to tell whether they will measure up to all qualifications. An interesting point in this connection is that some men in the rubber industry feel that so long as the government retains control of synthetic rubber plants, rubber companies are not going to be anxious to throw any startling new discoveries into production in government-owned plants where their secrets will be available to all competitors.

Part of the increased quality of tires in the last couple of years is due to development of new oil blacks which give much higher tread wear, and tire engineers cautiously admit that other new blacks are under scrutiny that may be even better. Improvement in techniques for handling cord also have contributed to high quality. Considerable progress has been made in reducing growth characteristics of rayon by pre-stretching techniques. Nylon still presents some problems on growth, although control is much better than it was a couple of years ago.

Today, rayon cord tires are considered adequate for 90 per cent of all requirements with the extra cost nylon recommended for extremely tough operating conditions, such as heavy loading or high speed operations where great carcass strength and heat resistance are required. In fact, performance characteristics of both rayon and nylon have improved so greatly in the last couple of years that it has narrowed the advantage in strength formerly held by the wire cord tire. There seems to be little evidence that wire cords are mak-

(TURN TO PAGE 104, PLEASE)



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Gasoline Pumps

- ACCURATE INVENTORY CONTROL
- ELIMINATION OF ERRORS
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- REDUCED MAINTENANCE COSTS
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offer these five* features—and more, because they are especially designed for rugged fleet fueling jobs . . . not a miniature but a full-sized gasoline pump engineered for the fleet operator.

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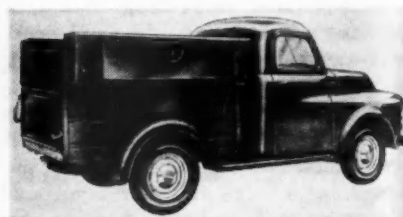
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Carryall Side Boxes



New model carryall side boxes manufactured by Morrison Steel Products, Inc., Buffalo, N. Y., feature flush mounting with the inside wall of the truck body giving additional height in the carrying area without reducing the capacity of the truck body. The weather tight compartments, secured with lock and key, are available 75 in. long for all ½-ton pick-up bodies and 91 in. long for ¾ and 1-ton pick-up bodies. The all steel boxes are mounted by means of braces and brackets supplied with each pair with no additional devices needed.

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SPRING SHACKLES • KING BOLT SETS • BUSHINGS • MUFFLERS AND CLAMPS • TAIL PIPES

What's New—in Tires?

Continued from Page 102

ing any appreciable headway, since the extra cost is prohibitive for all but the most severe operating conditions. In addition to the high cost, another disadvantage of wire cord tires is the necessity to run at extremely high inflation, which is hard on the vehicle, particularly when it is running empty. Also, the wire cords are subject to damage from flexing and are more difficult to repair than a textile cord tire.

Development of tubeless truck tires is being looked at by some of the larger tire builders, but apparently is still quite a long time away. Actually, the tubeless tire for passenger cars is a subject of considerable controversy in the tire industry although all companies are either actually building them for the market or still experimenting with them. Tubeless tires for trucks, however, present a much more formidable problem than passenger cars because of wide variation in wheel and rim designs and use of split rims. There is still much work to be done before any-

thing like a satisfactory tubeless truck tire will appear on the market.

Supply is Good

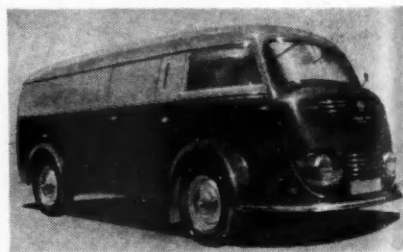
AS far as supply of truck tires in relation to demand is concerned there is no problem in the foreseeable future. In fact, truck tire sales this year are far behind the industry's forecasts and as one sales manager ruefully put it "the operators have been having a field day in making deals for tires." One reason for the miscalculation in the size of the market this year was that truck operators apparently had "larger basements" to store tires in during the early days of the Korean war than industry statisticians anticipated. There has been an upturn in demand, however, which started in July, indicating that reserves in the hands of fleet operators and dealers' inventories have been liquidated. Nonetheless, the tire dealer faces a rugged competitive battle for the truck tire business because capacity of the industry to produce would seem to be ample for almost any requirements the trucking industry can put upon it.

So far as prices are concerned, cost pressure on the manufacturer has been upward with recent substantial wage increases adding to the pinch on profit margins. Counterbalancing this, however, is the extremely competitive market. General opinion appears to be that tire prices at the manufacturers level cannot come down but probably will not increase significantly either, so that a stabilized level is in prospect, at least so far as list prices are concerned. What the operator actually pays for the tires, of course, will be largely a matter of dealing between him and his supplier.

END

Please Resume Reading Page 69

1.4 Ton, Front Axle Drive



This restyled, 1.4 ton Matador truck made by Vidal of Harburg (near Hamburg), Germany, features front wheel drive. The engine is placed to the rear of the driver's cab and the front axle, with all four wheels independently suspended. Two new engines are used to power the vehicle. One is a valveless, 3-cyl, water cooled, two cycle engine, and the other is an overhead valve, 4-cyl unit. The latter was designed by Heinkel, well known airplane designer and builder.

WHEN IN DOUBT . . . Consult your EBERHARD CATALOG

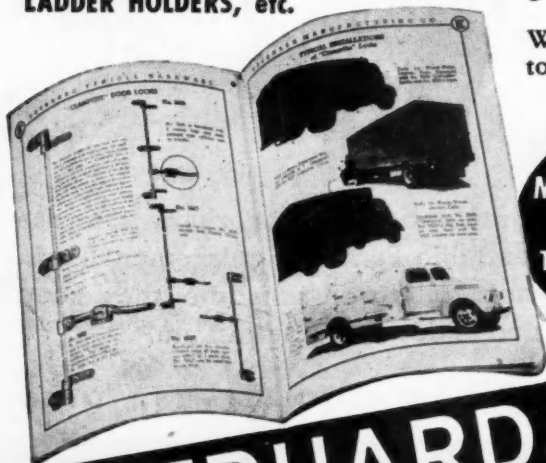
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"LONG RUN"
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There's a wealth of important information in the Eberhard Catalog. Truck body hardware application problems confronting you may prove simpler after you see how the complete **(E)** hardware line readily lends itself to a multitude of practical uses. Accurate listing of hardware weights, sizes and specifications will prove valuable to designer and installer alike.

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FIRST DECADE

Champion Coal Company of Library, Pa., has been operating trucks with Alcoa Aluminum bodies since 1928. Coal is hard on trucks, but some of the bodies were used for ten years before being sold to other operators. Compared to trucks of other materials, Champion's ten delivery trucks with Alcoa Aluminum bodies have an extra payload of approximately 1,550 pounds each.

Pays Off

EQUIPMENT MANUFACTURERS

Alcoa has a new booklet ready for you. It includes sections on engineering considerations, fabrication methods, and available materials. Mail the coupon today for your free copy.



"SEE IT NOW" with Edward R. Murrow—CBS-TV every Sunday ...brings the world to your armchair. Consult your newspaper for local time and channel.

ALUMINUM COMPANY OF AMERICA
1876-M Gulf Bldg., Pittsburgh 19, Pa.

Gentlemen:

Please send me a copy of "Truck Bodies Fabricated from Alcoa Aluminum."

Name _____

Company _____

Address _____

City _____ State _____

First in Aluminum
THE METAL THAT LASTS

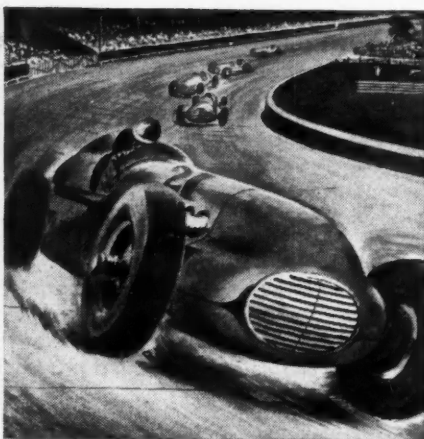
Shop Made Devices Speed Small Fleet PM

Continued from Page 71

kinds of chisels, punches, wrenches and other small hand tools. We keep these in a special place. We took a length of 2 x 4 wood, drilled holes along the top of it, installed it along the rear of work bench and set in the holes the punches, chisels, etc. They are always there, ready for use, and an empty hole at the end of the day means some

mechanic is holding out and he had better get that chisel back in place. Similarly, we keep our small hand tools, wrenches and so forth mounted upon a special panel fastened to the wall immediately abutting the end bench. Every tool has its place and every place must contain the proper tool at the end of the day.

*** MONMOUTH** *first with the finest*



Clevite* 77— coast to coast—a winner

IN the Indianapolis Speedway Races of '50, '51, and '52, the winning cars and a majority of all other entries were equipped with Clevite 77 and Micro* Engine Bearings. In punishing stock-car races on dirt tracks from coast to coast, these bearings are also widely used.

Clevite 77, the last word in bearing qual-

ity, has been designed for rugged service conditions. The features that make Clevite 77 the choice of racing car operators make this bearing equally important to truck, bus and car owners.

For replacement use, Clevite 77's are sold under our Monmouth Brand. They should be used only where engine manufacturer's specifications call for Clevite 77.



*Your Motor
Wants Better
Oil & Grease
to Run!*



*The words Monmouth, Clevite and Micro are registered trade marks of The Cleveland Graphite Bronze Co.

**THE CLEVELAND
GRAPHITE BRONZE CO.**
Cleveland, Ohio

CGB FIRSTS: The development of continuous strip casting, 1929—thinwall babbitt lined steel-backed bushings, 1931—continuous casting of copper lead on steel strip, 1934—tri-metal bearings, 1938—Micro Bearings, 1939—Clevite 77, 1944—and others which have helped to revolutionize the lined bearing industry.

We tear down and rebuild our own engines and make the engine unusually accessible to the mechanic by means of the universal test stand we have built in four sections out of 1-in. steel pipe which can be assembled, or disassembled, in a matter of moments by means of eight bolts. After using, we disassemble the stand and store it away out of the road.

At each end of the stand at the top center we have welded into the framework a couple of old connecting rods complete with cap and bolts which can be loosened or tightened at will. Running through the connecting rod on either end of the framework of the stand is a 7-in. long length of a 2-in. diameter steel shaft. This shaft can be made to revolve or rotate in almost a half circle simply by loosening the connecting rod cap by loosening the bolts.

We have welded a steel plate to each of these shafts and this plate serves as a bed for any one of the different type adapter heads we have built to hold any one of our three types of engines, our differentials, transmissions and rear ends.

We lower the engine, or other assembly to the adapter head by means of a chainfall hoist and then run bolts through the steel plate, through the adapter head, through the engine, thus tying the whole thing up into a single unit. Since the shaft can be made to rotate in almost a half-circle through the connecting rod we only have to loosen the bolt on the connecting rod cap, rotate the engine into the most accessible position for the mechanic, and hold it there firmly in this position tightening up the connecting rod cap bolt again.

After rebuilding we give the engine a 16-hr run-in on still another very handy little stand we designed and built. This stand is constructed out of an old truck chassis frame we sawed in half. The stand is supported by a framework of 2 by 1/2-in. steel bar stock. The whole deal is mounted upon another framework at the bottom which is casted and thus makes the stand portable. We can push it any place we want.

On one side of the stand we have bolted a steel panel upon which is mounted such essential test equipment as an oil gage, a temperature gage, an ammeter, a voltage regulator. On the other side of the stand we have welded a flat piece of steel with the ends turned up to support the battery. A first-class radiator is permanently mounted upon the framework of the stand at the front.

END

Please Resume Reading Page 72

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NOW A

Great New

PACKARD BATTERY CABLE

**BUILT WITH A NEW INSULATING COMPOUND
THAT LENGTHENS LIFE, REDUCES FIRE HAZ-
ARD . . . OFFERS GREATER RESISTANCE TO
ACID, OIL AND GREASE. NO CHANGE IN
PART NUMBERS . . . NO INCREASE IN PRICE!**

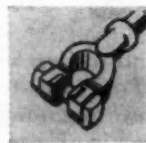
From "battery cable headquarters" comes the greatest advancement in battery cable construction in 40 years—a Packard battery cable built with a revolutionary new type of insulation that offers definite advantages over the old rubber-braid-and-lacquer construction, but at no increase in price!

PACKARD MEANS QUALITY

The new insulation—"compound 809"—virtually eliminates fire hazard because it will not support combustion. It offers greater resistance to acid fumes, oil, grease, moisture and abrasion. It cannot fray out, as braided covers sometimes do; it presents a better appearance; it gives double the useful life of inferior insulations.

CHOICE OF TERMINALS

The Packard policy of supplying two types of battery cable terminals will continue. Purchasers of the new cables made with Compound 809 will have their choice of Packard leaded-brass terminals or Packard LeadAlloy terminals—at no change in price.



Batteries will function better, longer—vehicles will operate with lower maintenance and repair costs—when the new Packard battery cables are installed.

Packard
REG. U.S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio

FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

... Good Fleet Management

Continued from Page 51

3. Standardization of service policies and shop procedures.

Facilitation of Executive Supervision—By

1. More efficient handling of motor-transportation problems. They have become such a large, technical and complex factor in the operation of many in-

dustries as to demand the same type of centralized control (or coordination) that is exercised over other important departments of the business, such as merchandising and production.

2. Elimination of inter-organization friction, intrigues and controversies, through codified standard practice and clearly defined authorities.

3. Educational activities to overcome antiquated and expensive practices.

4. Standardization of cost-accounting, permitting the experience of one unit or subsidiary to be cited for the benefit of other units without costly experimentation by the other units.

5. Exercise of closer scrutiny and improved judgment in replacement of worn-out or unsuitable equipment, because of broader perspective furnished by uniform cost-accounting and centralized control. This ever-present problem is one demanding keen analysis and a high degree of coordination if wasteful practices are to be avoided.

6. An improved spirit of cooperation among employees due to the existence of clearer job-standards and corresponding ability to compare the performance records of employees.

Equipment Selection and Retirement

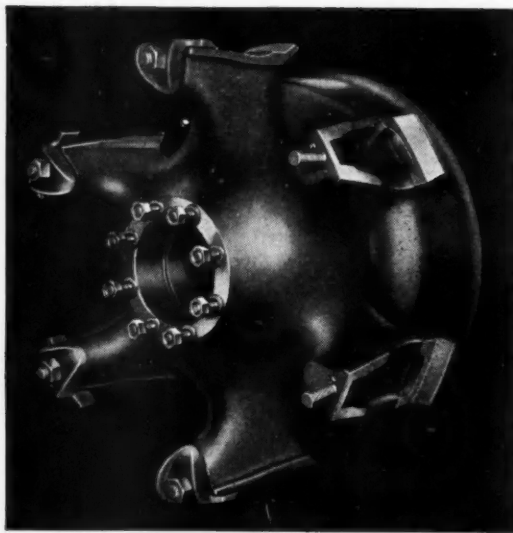
SELECTION should avoid rule-of-thumb procedures. Even though a like-for-like vehicle replacement is indicated, today's changed operating conditions, legal and otherwise, should be scrutinized carefully. This is especially important with respect to cargo vehicles intended for largest possible carrying capacity, where the owner's aim is optimum economy—or in the case of for-hire carriers, earning power. Such vehicles are often so "tailored" in respect to dimensional and axle specifications as to inhibit maximum efficiency.

Careful pre-selection job studies not only will clarify the above problem but also will result in the most effective "compromises" (and I believe that word necessarily applies in many instances) in respect to horsepower, axle ratios, tare weight and other elements of importance.

Skilled vehicle selection has received increasing and very beneficial study in recent years—but one goal has received too little comment, namely that of reduction of capital investment, a matter of high importance to corporation executives. Improper selection, as well as unintelligent utilization, contribute to an imprisonment of capital which well could show a greater investment return elsewhere in the corporate picture.

Similarly, vehicle retirement deserves intensive study. It is a difficult problem, loaded with variables, which I doubt will ever be solved completely either by educated guess or by mathematics. The operator must use his soundest judgment in retirement studies (as in vehicle transfers) with overall economy in mind. That somewhat vague term "overall economy" refers specifically here to: (a) operating expense, (TURN TO PAGE 112, PLEASE)

WHERE WEIGHT COUNTS



GUNITE WHEELS

DESIGN TELLS THE STORY

Gunite truck and trailer wheels are skillfully engineered to stand the gaff of "peak-load" operation. Tubular-spoke design provides maximum strength through accurate weight distribution. Floating rim bolt assures easy servicing and true alignment with rim clamp. Gunite wheels are made of quality cast steel... yet are light in weight. To cut cost per mile, specify Gunite... the wheel that's designed to take the bigger loads over the rougher roads.

and GUNITE DRUMS too!

An integral part of every Gunite wheel assembly is the Gunite brake drum. Designed of superior Gunite metal, it resists heat check, fading and flexing. Gunite drums cause less braking wear, assure more miles of service.



GUNITE

GUNITE FOUNDRIES CORPORATION, Rockford, Illinois

USE DELCO BATTERIES



For finer performance at low cost, choose Delco—the Nation's No. 1 battery. Delco is designed for the long haul . . . ruggedly built to take it, and keep on taking it, in heavy-duty service. So—choose Delco for dependable, continuing low-cost-per-mile performance. Delco batteries are available everywhere.



DELCO BATTERIES

A GENERAL MOTORS PRODUCT



A UNITED MOTORS LINE

DISTRIBUTED BY WHOLESALERS EVERYWHERE

UNITED MOTORS SERVICE

Division of General Motors Corporation

General Motors Building

Detroit 2, Michigan

... Fleet Management

Continued from Page 110

(b) investment account, and (c) to a constant realization that both (a) and (b) are cash out of the corporate till.

One last word on this subject. Total transportation cost is, of course, vehicle cost (controllable and fixed) plus driver cost. I believe that in many instances since World War II driver cost is rising at a greater rate than vehicle cost. Analysis may disclose individual instances where total costs may be

somewhat reduced by the purchase or assignment of a delivery vehicle larger than formerly deemed necessary. The idle time of such vehicle will be increased, but the driver may return to his base much sooner, there to devote his time to other work, such as warehousing, etc.

Maintenance

THAT detailed attention to the ever-changing art of maintenance, and to a maintenance organizational structure properly designed for the individual fleet, scattered or otherwise, will

contribute to economy is self-evident.

It must suffice here to emphasize the necessity of establishing suitable standards relative to personnel and equipment and their utilization—and to underscore the benefits to owners of maintenance research on a variety of items. Manufacturers, also, will be benefitted if they will examine fleet records of failure frequency, and consult with men who earn their living keeping fleets rolling with a minimum of cost and of down-time.

I believe much remains to be done in the collection of an adequate amount of operating data, in correlating such data and establishing standards thereby to the extent possible, covering loading time, running time, unloading rates, clerical time of vehicle operators, and the like. Such studies can be of great practical use in reduction of operating expense and of capital investment.

Analyses of this nature, supplemented with development of routing and dispatching procedures, are particularly valuable in delivery operations, where solicitation of the consignee's cooperation is successful. Reasonable maximum of hours of operation, the reduction of peak loads, and the hauling of a maximum load in terms of time and of distance are goals usually subject to comparative attainment. The effect on fleet size and on cost per ton mile can be dramatic.

Also these studies can be helpful in some of the elements of equipment selection. For example, the effect of traffic congestion sometimes can be measured in terms of driver cost, and vehicles with more appropriate power and gear ratio supplied.

No discussion of vehicle operation can be complete unless reference is made to rather recently developed techniques of driver selection and training. Some of them are exceedingly effective. Such a program should be high on the agenda of fleet management objectives. Results definitely to be anticipated are:

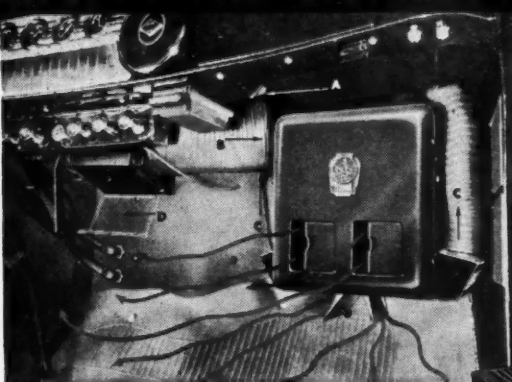
1. Lower maintenance expense through reduction of accidents, and insurance premium cost resulting therefrom.

2. Notable reduction of the so-called "hidden costs" which are caused by driver ineptitude.

3. Greatly enhanced driver morale. The development of pride of attainment of genuine professional status as a driver is not only a highly desirable goal of management-employee relations, but will achieve such eminently practical results as faster round trip time due to reduced roadside consumption of coffee.

4. Improved union relations, largely because of employment of drivers of (TURN TO PAGE 114, PLEASE)

NEED MORE THAN JUST A HEATER?



A—Damper recirculation control
B—Fresh outside air from cowl ventilator
C—To defrosters

D—Door opens for fresh outside air from cowl ventilator in summer

EVANS FEATURES PROVIDE HEAVY DUTY DEPENDABILITY WITH SERVICE-FREE PERFORMANCE

1. Heavy duty bus type low drain motor
2. Heavy duty large capacity core
3. Complete accessibility for inspection or servicing
4. Controls provide accurate selection of warmed air, temperature and flow
5. Fresh or recirculated air, warm or cool, in any combination
6. Large defroster outlets may be located to suit cab requirements

THIS EVANS
Fresh Air
UNIT IS
**CUSTOM ENGINEERED
AS A COMPLETE
HEATING AND
VENTILATING SYSTEM**



POWERFUL EVANAIR FAN CHANGES CAB AIR 3 TO 4 TIMES PER MINUTE

Precision die-molded in one piece of lightweight strong metal. Will not chip, crack or bend. Not affected by temperature. Aerodynamic design, circulates more air with less noise, less current draw. Lighter weight results in less load on motor bearings, insuring longer life.

EVANS ENGINEERING IS AVAILABLE TO YOU

The Evans organization is staffed to engineer to your specifications, organized to build prototypes quickly, equipped to conduct precision tests to latest A. S. H. V. E. procedures. If your needs are for high performance, ruggedly constructed automotive heat-

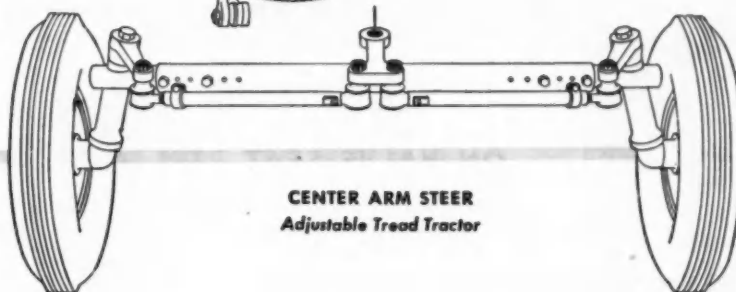
ing and ventilating equipment—custom built to your specifications—it will pay you to consult:

EVANS PRODUCTS COMPANY,
HEATING & VENTILATING DIVISION,
DEPT. Q-512, PLYMOUTH, MICHIGAN.

... **EVANS** ... **CUSTOM HEATING AND VENTILATING** ...
FOR A WORKING WORLD ON WHEELS



Engineered Steering for All Wheeled Vehicles



STEERING LINKAGE must be developed to meet the problems peculiar to many sets of design conditions. For over 50 years Thompson's "Steering Engineers" have worked closely with manufacturers of all types of wheeled vehicles to develop and produce the best steering linkage for any type vehicle.

Illustrated here are typical examples of steering linkage produced by Thompson for passenger cars, for trucks and buses and for tractors.

Whether your problem is improved steering for a car, a truck or a tractor, the Detroit Division of Thompson Products has, or can engineer and produce, the steering linkage best adapted to the vehicle you produce. We welcome the opportunity to work with your engineers on any of your steering problems. Please contact us.

YOU CAN COUNT ON...

Thompson Products, Inc.

DETROIT DIVISION

7881 Conant Avenue

Detroit 11, Michigan



HOW MUCH SPRING TENSION IS LOST When You Grind Valves & Seats?

"EXPERT MAINTENANCE MEN KNOW" . . . says "Pete" Peterson, "that on one engine you lose up to 25% valve spring tension (valve in closed position) when the pressed-in valve seat is lowered as little as 32 thousandths. Loss of spring tension causes broken or burned valves because valve flutters and bounces on a hard, distorted and cocked pressed-in valve seat.

DO YOU KNOW . . . ? That when using *pressed-in seats* (pre-cut 45°) you can't get the correct valve seat height because:

1. The pre-finished valve seat insert drops below block surface when pressed into a deepened counterbore. You necessarily deepen the counterbore when you clean and true it up.
2. *Pressing in* an insert distorts the valve seat which then requires considerable grinding to get it back to round. With excessive grinding you again lower the seat.

Both "truing up" processes set the valve seat lower in the block than called for in original factory specifications . . . the result, decreased spring tension and ultimate valve breakage and burning.

Stays Round—Cools Valve!

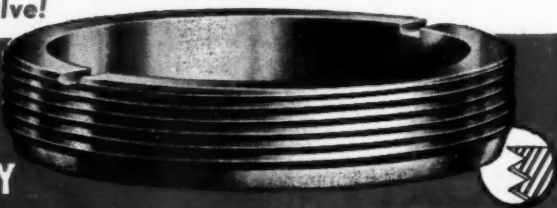
Made of tough chrome-nickel-iron, individually cast under pressure. Unlike pressed-in seats, P-B Screw-In Valve Seats retain their original dimensions, won't buckle and come loose, can't lift and cause hot spots and valve burning, and allow for perfect seating of valve on every stroke.

ONLY

THE **P-B**

SCREW-IN VALVE SEAT

WITH EXPANSION CLEARANCE



LETS YOU HOLD FACTORY TOLERANCES ON VALVE SEAT REPLACEMENTS!

1. With P-B seats you can get exactly the right valve seat height even though you deepen the counterbore. P-B seats have an extra 1/16" of material which is easily machined off flush with block. And since the P-B seat is *not* pre-cut, you can grind to factory accuracy.
2. Because you *screw-in* the P-B insert there is absolutely *no* distortion . . . the seat remains perfectly round.

P-B's exclusive features let you hold factory specifications . . . maintain proper spring tension . . . double your valve mileage.

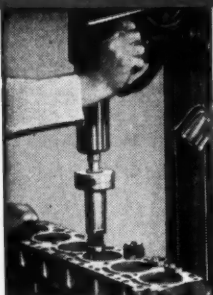
AMAZING PERFORMANCE

- **SAVES COSTLY BREAKDOWNS**—Eliminates 75% of valve burning, sticking and breakage. The *predetermined* expansion clearance machined in between the threads of the P-B seat also eliminates 75% of valve port cracks due to radial pressure of expanding pressed-in seats. P-B *stress-relieves* this area.
- **REPLACEMENT OF SEATS MANY TIMES—WITHOUT OVERSIZE**—You can replace P-B seats without damaging the threads in counterbore or going to an oversize.
- **EASY TO REGRIND**—After long service just a light touch with the grinding stone cleans it up because it is not out of round.

CONTACT YOUR MASTER SHOP TODAY!

P-B Master Shops are now located in every major city in the U. S., ready to help you solve your toughest valve maintenance problems. Or write for further information:

Leader for 20 years in head and block valve port welding procedures



P-B drill press unit for production installation. Also available HEAVY DUTY PORTABLE unit for jobs in or out of chassis—up to Diesel locomotives.



Special 8 and 12 fluted CUTTER and TAP makes only precision counterbore in replacement field and machines in expansion clearance between threads.



SCREW-IN SEAT WITH
EXPANSION CLEARANCE

PETERSON WELDING LABS., INC.
Dept. C-12 1423 Virginia Kansas City, Mo.

PETERSON WELDING LABS., INC. is a subsidiary of the W. E. and Company, Inc. the American Valve Seat Corp., Toronto, Canada.

... Fleet Management

Continued from Page 112

superior personal and job qualifications. The percentage of rejection of driver candidates is some measure of the effectiveness of a sound program of driver selection.

Superior Officers

OF COURSE, there are examples of higher company executives who are lacking in automotive knowledge and therefore in understanding of the proper scope and responsibilities of the job. In such instances the fleet operator must realize that ample, thought-provoking data easily may be developed with which to impress the boss with his automotive facts-of-life.

As for the higher executive who has not been close to his motor-vehicle problems, I suggest that he answer the following self-questionnaire:

1. What is my total motor-vehicle investment?
2. What is my total annual expense for motor-vehicle operation, maintenance, fixed charges, and the like?
3. How many units does my company own?
4. How many units does my company rent? Why?
5. Have I an adequate cost system for control of automotive activities?
6. How does my expense per ton-mile, or other basis of measurement, compare with that of other companies in my industry. How are my net profits affected thereby?
7. Are the activities and responsibilities of my automotive personnel properly organized, coordinated and charted?
8. Is my fleet manager properly qualified, technically and as a business executive?
9. Have I given him sufficient authority to enable him to exercise adequate control?
10. Do I consult with him frequently enough?

The company executive, if he will but spend intensively the right amount of time on this complex problem, cannot help but gain the complete understanding which is necessary if he is to reap the benefits which can be achieved only as a result of his final authority.

END

Please Resume Reading Page 52

The 1952 edition of ICC Rules and Regulations Governing Transfers of Rights to Operate as a Motor Carrier in Interstate or Foreign Commerce is available at 5¢ a copy from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

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On the Mesabi Range this 20-tonner hauling iron ore is a Walter Dumper powered by a Waukesha Super-Duty Six 6-WAK Butane Engine

WAUKESHA *Super Duty Six*

1197 CU. IN. 6-WAK SERIES
ENGINES

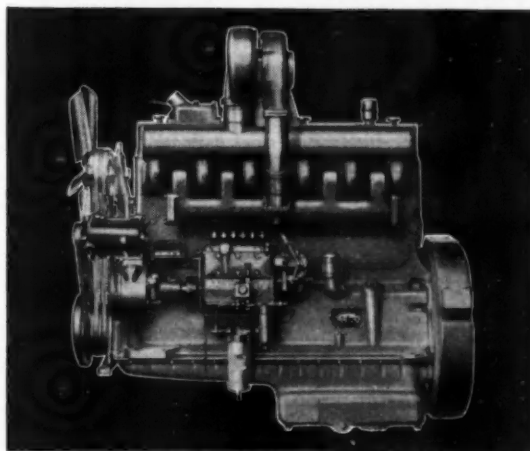
includes

- 6-WAK—Butane Engine
- 6-WAK—Gasoline Engine
- 6-WAKD—Diesel Engine
- 6-WAKDS—Supercharged Diesel Engine

UP TO 352 MAXIMUM HORSEPOWER

Standard or Counterbalanced Crankshafts Available.
Consult Waukesha on permissible speeds for your service.

Send for Bulletins.



New Supercharged 6-WAKDS Diesel, with center-mounted turbocharger; 6-cyl., 6¼ x 6½, 1197 cu. in., 352 max. hp.

WAUKESHA MOTOR COMPANY • WAUKESHA, WISCONSIN
NEW YORK TULSA LOS ANGELES 193

Dodge Ups HP in B-4 Line

Continued from Page 69

features aimed at increasing engine life. Among these are: hardening of the face of the intake valve; and a change to case-hardened manganese steel for the oil pump drive gear to eliminate breakage or scuffing.

An automatic transmission is available as extra equipment on B and C models. This drive will be known as

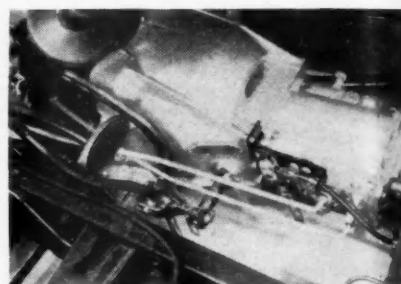
the "Truck-o-matic" and provides four forward speeds. The transmission will carry a 7 x 2-in. internal expanding parking brake. Actually, both B and C models offer a choice of four transmission combinations—the conventional three- or four-speed synchro-shift transmission; a combination of Fluid Drive and three-speed transmission; and the

four-speed "Truck-o-matic" with Fluid Drive.

K, KA, and KMA models are equipped with 310 lb ft helical gear constant-mesh transmission with direct in fifth gear, replacing the former synchro-shift transmission. The new transmission with overdrive in fifth gear is available as extra equipment on these models.

Brake Design Improved

IMPROVED braking and better balance between front and rear brakes is effected on 1/2 through 2 1/2-ton models by use of straight bore wheel brake cylinders on front and rear; and on rear brakes only for 2 3/4, 3, 3 1/2, and 4-ton models. Dual-primary type rear brakes are installed on 1, 1 1/2, 2, and 2 1/2-ton models in the following sizes: 1-ton, 14 1/8 x 2 in.; 1 1/2 and 2-ton, 16 x 3 in.; 2 1/2-ton, 16 x 3 1/2 in.



Left side view of M-6 transmission and linkage. The "Truck-o-matic" with fluid drive is now available for B and C models

All wheelbases of HM, J, JM, J, R, T, V, and Y models will be available again with either single or two-speed axles. In addition, two-speed axles are available as extra equipment for HS, JS, and RS school bus chassis. Rear axle capacity rating for K, KA, KMA, R, and RA models is increased to 15,000 lb. In addition, the KMA has a 5000-lb capacity front axle as standard equipment. To minimize wear during the initial break-in period, on models 1/2 to 2 1/2-ton the Lubrite chemical surface treatment has been added on hypoid rear axle gears.

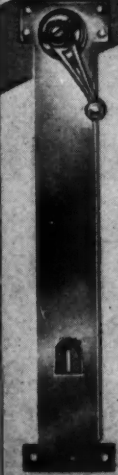
The more powerful engine on the Power-Wagon now is equipped with a conventional carburetor and sandwich type top speed control governor as standard equipment. The combination of carburetor and integral velocity governor, formerly standard equipment, now is offered as extra equipment, as is the mechanical governor specified for operating auxiliary equipment.

Except for slight modifications the general exterior appearance of the B-4 Series remains the same as before.

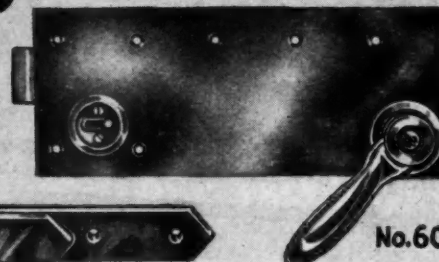
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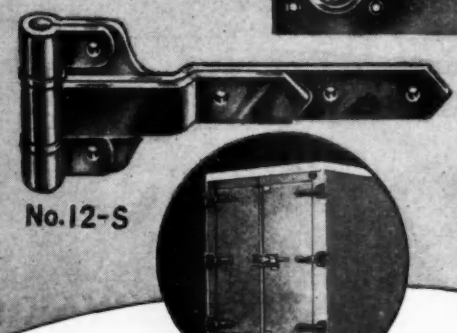
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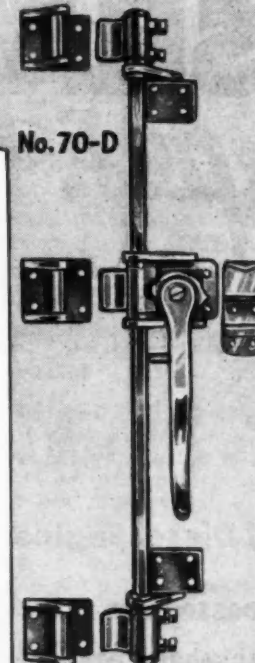
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No. 12-S



No. 70-D



BUILT especially to withstand the wear, tear and rough usage of commercial body service, Hansen Hardware reduces repairs, breakage and replacements to a minimum. Examples are the products illustrated:

No. 12-S Square-Corner Hinge. Leaf-type, two-ply, all-steel. 12" strap. Weight, 2 3/4 lbs.

No. 60 Lock. One-piece. 5" x 10". Hardened 1 1/4" striker bolt. Die-formed steel bushing.

No. 85 Regulator. Enclosed mechanism. Straight lift. Lead-coated to prevent rusting.

No. 70-D Refrigerator Door Lock. Lug-leverage action. Lugs and handle adjustable. Rod 72".

Whatever type of service in which Hansen-equipped trucks, trailers and tanks are engaged, Hansen stands up under hard, heavy-duty, grueling service—insuring steady performance and economy.

Hansen makes commercial body hardware in a complete line—Locks, Regulators, Hinges, Handles. What are your requirements?

REQUEST CATALOG

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE.
CHICAGO 40, ILL.

Cut W

Translated price

Additional 700 lb a

load @

80¢ cw

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COMMERCIAL

Cut Weight—Up Payload

Continued from Page 63

Translated into selling price	600.00
Additional revenue from 700 lb additional payload @ average of 80¢ cwt.	5.60
(350-mile trip)	
Additional revenue per mile016

The mileage that must be operated with additional payload to just get back additional investment is approximately 40,000 miles. It should be remembered that the number of miles that must be operated to get back the additional investment will be in proportion to the rate in the class of freight hauled. The higher the rate the lower the number of miles required—the lower the rate the higher the miles required.

It will be seen by this analysis that real contributions can be made towards greater earning power of motor equipment on the highway through the use of light weight materials. The example presented is based on an average increase in cost for aluminum per pound saved of 60¢. This cost increases as high as \$1.00 per pound saved on certain substitutions. It seems obvious that consistent with satisfactory life of the parts and their dependability in service where aluminum substitution is made that the use of light-weight metals is economically sound.

Consider Chassis Design

THERE is, however, an additional approach to the urgent problem of designing motor truck equipment so that it can carry more payload. And this approach considers the design of the chassis itself in terms of load distribution that will permit maximum weight on the king pin of a tractor within legal axle and total GVW limitations. It is a fundamental factor and can actually gain more in payload per dollar of investment than the use of light metal substitution.

In pursuing this approach of designing to realize more load on the king pin of the tractor, three factors are important in determining the king pin load that can be applied—

1. Front axle capacity.
2. Rear axle load.
3. Tare weight of chassis.

In considering front axle capacity, there are several limitations. The first is load capacity. In a conventional truck (hood out front of cab) the prac-

tical limit of front axle loading is approximately 8000 lb. Front axles of larger capacity are available but to transfer sufficient weight forward requires excessively long wheelbases which greatly reduce maneuverability.

In a cab forward design where there is no hood in front of cab and the engine is under the cab, practical front axle loading up to 10,000 lb is avail-

able. In the cab forward type, this transfer of weight can be obtained readily since the tare weight distribution is much heavier on the front axle and lighter on the rear axle of the tractor than on conventional equipment.

The cab forward type of tractor, provided it gives the type of tare weight distribution shown, will make possible more king pin load than the conventional tractor. In fact, it often amounts to approximately 3000 lb within legal axle limitations.

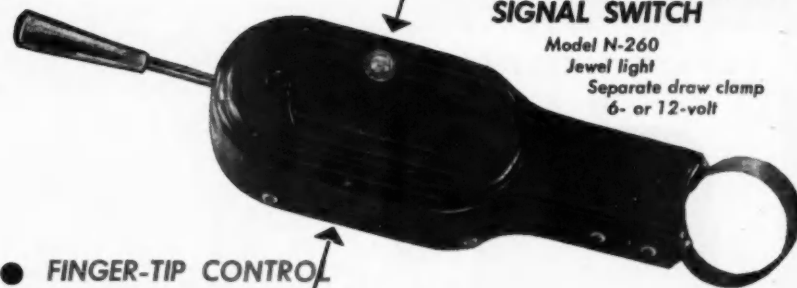
The rear axle of the tractor is always the critical axle in terms of legal

(TURN TO PAGE 120, PLEASE)

Unconditionally guaranteed

ARROW'S DIRECTIONAL SIGNAL SWITCH

Model N-260
Jewel light
Separate draw clamp
6- or 12-volt



- FINGER-TIP CONTROL
- BUILT-IN CIRCUIT PROTECTOR
- SIGNAL-WORKING/INDICATOR

UNCONDITIONALLY GUARANTEED against defective workmanship. The Arrow N-260 Switch is designed to last the life of the vehicle.

BUILT-IN CIRCUIT PROTECTOR prevents a short circuit in the system from affecting the other lights of a vehicle.

SIGNAL WORKING INDICATOR. This feature alone makes the N-260 Switch invaluable. The jewel light indicates whether your directional signals are working. If one or more lamps is out,

or if there is a break in the lamp circuit, the jewel will fail to light.

ADJUSTABLE HANDLE can be moved in and out to provide finger-tip control for any size steering wheel.

The N-260 Switch can be used with any Arrow Directional Signals or with any system now in use. It is available in complete kits with the new Arrow Class "A" Signals that have the new Magnalume Lens.

ORDER NOW!

ARROW

SAFETY AFTER DARK

ARROW
SAFETY DEVICE COMPANY
MOUNT HOLLY, NEW JERSEY



Cut Weight—Up Payload

Continued from Page 119

weight limitations. All states have restrictions on this axle that are enforced very rigidly. They are generally limited to 18,000 lb while in some states 22,000 lb is permitted. The cab forward permits a 2000 lb greater load than the conventional on the driver axle because its tare weight is that much lighter.

A dual axle can be used on the rear

of the tractor to alleviate the critical load problem. In most states a dual axle load of 32,000 lb is legal. In some states this allowable load is 36,000 lb. However, the tandem has the limitation of heavier tare weight and—assuming a standard 36-in. king pin trailer is used—often necessitates equipment with landing gear mounted at least 11 in. back of front of trailer. This is necessary because the fifth wheel on the tractor must be mounted approximately 10 to 15 in. ahead of the center line of the two axles to transfer sufficient weight to the front axle to make

the tractor steer and handle satisfactorily.

So the tandem dual axle tractor does increase the allowable GVW but it is not the best solution for states having total allowable GVW of 58,000 lb to 60,000 lb. The tandem axle tractor with tandem axle trailer having fifth wheel located at up to 15 in. ahead of center line of the tandem would have a gross capacity of 72,000 lb. This is far in excess of the 58,000 lb to 60,000 lb allowable and the higher investment and heavier weight do not indicate that this equipment solves the problem. The fact that a tandem axle cannot give interchangeability with all trailers, even with landing gear 96 in. or less from the front of the trailer, represents a very serious disadvantage for this type of equipment.

The possibility of greater king pin loading through unique chassis design is shown by a study of a new development by White. In this design an axle with an individual wheel mounted directly to the frame is placed ahead of the driving axle, and these wheels steer in coordination with the front axle. It is light in weight and equipped with only one tire on each wheel. This tire is the same size as used on the other wheels of the tractor. The weight of this axle is 1350 lb including two 10.00-20 tires. This combination of the tractor's drive axle and the additional axle is permitted to carry 27,000 lb on state highways. So with this tractor combined with a dual tire trailer, the allowable axle loading is 64,000 lb.

END

Please Resume Reading Page 64

BOLSER

THE GREAT NAME IN HIGHWAY SAFETY EQUIPMENT

TODAY'S FINEST FLARE BUY



**GENUINE BOLSER
REFLECTOR FLARE
KIT**

- This Reflector Flare has everything . . . Exclusive locking device keeps lenses at right angle for maximum reflection and greatest warning distance . . .
- Plastic lenses hermetically sealed into permanent position . . . Rust-resistant, electro-plated, heavy zinc finish. Fastest flare to set out and replace in kit.
- Fully meets all ICC and State Regulations. Available 3 flares, with or without flags in carrying case—or single units only.
- Heavy-duty steel case. Weather-tite side or bottom mounting. Locking hasp. See your jobber.

**BOLSER . . . A FULL LINE OF
QUALITY SAFETY EQUIPMENT**



FLAGS

LIGHTS

ARMoured LAMPS

MIRRORS

FUSEES

DIRECTION SIGNALS

REFLECTORS

REFLECTOR FLARES

OIL BURNING FLARES

THE BOLSER CORP. Cedar Falls, Ia.

Conference Corner

Continued from Page 6

it is mated the following day, some distortion has occurred in the interval.

In addition to improvement in cooling the work, the grinding wheel traverses automatically across the surface with an even pressure. A gage sets the limit to the amount of metal that can be removed. Thus a job that requires the removal of .015 in. can be set for that much and no more.

Improvements like these increase confidence that the job will be right. Instead of accepting questionable blocks with the hope that the gasket will correct the difficulty, engine rebuilders can insist that the block and head mate along every square inch of surface.

END

Please Resume Reading Page 10

"Don't thank me
mister... thank
my Thor impact
wrench..."



Emergency service becomes standard service when your shop is equipped with modern Thor Electric Impact Wrenches for rapid tear-down and repair. Available in $\frac{3}{8}$ " and $\frac{1}{2}$ " capacities. Rugged, reliable, most powerful on the market. Send for Bulletin JE-1499. Thor Tools, Aurora, Ill.



**VALVE REFACERS • VALVE SEAT GRINDERS • SANDERS
IMPACT WRENCHES • POLISHERS • DRILLS • SAWS
BODY AND FENDER HAMMERS • GRINDERS • HAMMERS
BENCH GRINDERS • SCREWDRIVERS • ACCESSORIES**



FACTORY SERVICE BRANCHES IN 20 PRINCIPAL CITIES

COMMERCIAL CAR JOURNAL, December, 1952

How to Stop a Truck

Continued from Page 67

A small direct-current generator having a voltage output directly proportional to its armature speed was chosen for the element needed to quickly detect sudden changes in wheel rpm. A 4 to 1 step-up gear box provided sufficient armature speed at low wheel speeds.

Since the power output of the sensing generator is small, it was therefore

inadequate to power the solenoid brake pressure valve. Two electrical relays, a condenser, and battery were interposed between the generator and the brake valve to multiply and reinforce the weak sensing signal. The small DC generator, the condenser, and the coil of the current-sensitive relay were connected together as shown.

To activate the control, current must

flow through the coils of the current-sensitive relay. The generator armature is directly connected to the wheel it controls and always rotates in unison with that wheel. We also know that rotation of the generator produces voltage proportional to its speed. Just what are the actions and reactions that enable this circuit to react to a sudden speed change but be unaffected by a normal speed up or slow down?

The generator and condenser occupy opposing positions in the circuit diagram. The condenser will not permit a

This *Clayton* Dynamometer will show you why we bogged down on Big Pine Grade

Your drivers know when power lags.

Only on the Clayton Chassis

Dynamometer can your maintenance superintendent accurately and quickly duplicate the driving condition in your shop...to find the same power lag.

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Dynamometer win the fleet maintenance awards year after year. To find out why...and how...mail the coupon for an authoritative engineer's report

reprinted from the S. A. E. Journal.



Clayton
DYNAMOMETER

CCJ-12

CLAYTON MFG. CO.
BOX 550, EL MONTE, CALIF.

Send us the complete story on modern truck fleet maintenance

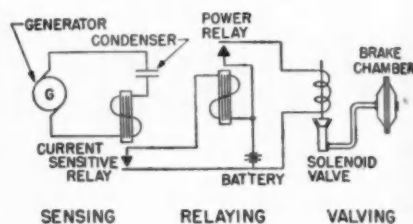
NAME _____

FIRM _____

ADDRESS _____ CITY _____ STATE _____

MAIL THIS COUPON FOR THE FULL STORY

THE BASIC CONTROL CIRCUIT



pure, steady, direct current to flow through it—a current such as is put out during a normal wheel slow-down. It will, however, permit the voltage to charge its plates. A sudden change in generator voltage, such as occurs with a sudden change in speed, either a speed up or slow down, will upset the condenser plate balance or voltage equilibrium. Condensers are inherently balancing mechanisms; and the condenser, in its effort to maintain voltage equilibrium on its plates, will discharge and current will flow in the circuit. This current will pass through the coils of the relay causing its switch to close and pass a signal to the relaying circuit.

The signal as received energizes the coil of the second relay and closes its switch. It thereby starts a current through the solenoid coils of the pressure valve. The switch points of the

Stopping Distance Summary

Average Stopping Distance of Tractor Semi-Trailer From 20 mph on Glare Ice Straightaway Using Different Braking Combinations.

Brakes on Axles	Ave. Stop Dist.-ft.	Relative Stopping Ability	% of Gross Train Weight on Axles Braked
1-2-3	148	100	100
2-3	176	84	81
1-3	211	70	58
1-2	217	68	60
3	254	58	40
2	265	56	41
1	348	42	19

Air Temp. 8°F.

(TURN TO PAGE 124, PLEASE)

(Advertisement)

Announcing General Motors Better Highways Awards

*\$194,000 in awards for the most practical solutions
to America's critical highway problem*

Every American is intensely aware of the inadequacy of our roads and streets to meet today's highway transportation needs. Yet too few have given thought to a practical solution.

It is a difficult problem, because modern highways cost a lot of money. *But lack of them is costing even more!*

To encourage all Americans to think about this critical situation and come forward with practical solutions, General Motors is instituting the GM Better Highways Awards for the best essays submitted on the following subject:

"How to Plan and Pay for the Safe and Adequate Highways We Need"

A total of 162 State, Regional and National Awards will be given for those entries which are considered best by an independent board of five judges. The following have accepted appointment to the board:

NED H. DEARBORN
President, National Safety Council
THOMAS H. MACDONALD
Commissioner, Bureau of Public Roads, U.S. Department of Commerce

CURTIS W. MCGRAW
Chairman of the Board, The McGraw-Hill Publishing Company

DR. ROBERT G. SPROUL
President, University of California

B. D. TALLAMY
Superintendent, New York State Department of Public Works and President, American Association of State Highway Officials.

Entries will be judged for originality, sincerity and practical adaptability—not on literary merit.

To help you in preparing your entry, background information about the present highway crisis has been compiled in "The General Motors Better Highways Awards Facts Book." A copy, containing official contest entry form,

will be sent you on request, or can be obtained from any General Motors car or truck dealer.

Contest closes midnight, March 1, 1953. Winners will be publicly announced as soon thereafter as the judging can be completed.

CONTEST RULES

1. WHO MAY COMPETE: Any individual who is a resident of a state of the United States or the District of Columbia may compete for an award, except Contest Judges and the members of their immediate families.

2. WHAT IS TO BE SUBMITTED: Each contest participant shall submit an original essay, with any supporting material or data the participant may desire, on the subject

"How to Plan and Pay for the Safe and Adequate Highways We Need"

3. HOW, WHEN, AND WHERE ENTRY IS TO BE SUBMITTED: To be eligible for award consideration, each essay must be submitted with an official entry blank which may be secured from any General Motors car or truck dealer or by writing to

General Motors Better Highways Awards
General Motors Building
Detroit 2, Michigan

Essays may only be submitted with a completed official entry blank, and must be mailed to the address immediately above.

To be eligible for award consideration, a contest entry must be postmarked not later than midnight, March 1, 1953, and must be received by March 14, 1953.

4. GENERAL REQUIREMENTS AND CONDITIONS CONCERNING ENTRIES: A participant by submitting an essay agrees to be bound by all rules of the contest. Each essay shall be in English, on one side of the paper only, and preferably typewritten. Illegible essays will be automatically disqualified. While brevity is suggested, no limitation is placed on the length of the essay. Participants should use the number of words they believe necessary. No essays will be returned. Upon submission, each essay and the contents and ideas therein become the property of General Motors Corporation which shall have the exclusive right to make unlimited use, in whole or in part, of the same. A participant represents by submitting an essay that its contents, in whole and in part, are original, and participant further represents that such essay has not been submitted, or in any manner disposed of, to other than General Motors Corporation.

5. AWARDS: Contents of essays will be judged for originality, sincerity, and practical adaptability. Awards in the number and amounts listed below will be made as determined by a Board of judges.

SIX NATIONAL AWARDS

First Award, \$25,000;
Second Award, \$10,000;
Third Award, \$5,000;
Three Honorable Mention Awards, each \$3,000.

NINE REGIONAL AWARDS

For the best essay submitted from each of nine regional sections* of the United States, each \$2,500.

THE GENERAL MOTORS BETTER HIGHWAYS AWARDS

"How to Plan and Pay for the Safe and Adequate Highways We Need"

SIX NATIONAL AWARDS

FIRST AWARD \$25,000
SECOND AWARD \$10,000
THIRD AWARD \$ 5,000
THREE HONORABLE MENTION AWARDS each \$ 3,000

NINE REGIONAL AWARDS

For the best essay submitted from each of nine regional sections* of the United States . . . each \$ 2,500

147 STATE AWARDS

49 First Awards, one for every state and District of Columbia each \$ 1,500
98 Honorable Mentions, two for every state and District of Columbia each \$ 500

*States included in each region are listed in "The General Motors Better Highways Awards Facts Book."

States included in each region are listed in "The General Motors Better Highways Awards Facts Book."

147 STATE AWARDS

49 First Awards, one for each state and the District of Columbia, each \$1,500.

98 Honorable Mention Awards, two for each state and the District of Columbia, each \$500.

The selection of award winners will be made from all entries as a group. National award winners will be selected first and thereupon automatically eliminated from further consideration. Regional award winners will be selected next from the remaining entries and will automatically upon selection be eliminated from further award consideration. From the entries remaining after the selection of national and regional award winners, state award winners will be selected. No participant may win more than one award. In the event of ties for a particular award, or in the event that an essay of an employee of General Motors Corporation, or one of its domestic subsidiaries, is an award winner, duplicate awards will be made.

6. ANNOUNCEMENT OF AWARDS: The names of all award winners will be announced as soon as possible after the close of the contest.

7. The decision of the Board of Judges with respect to awards and all other contest matters are final and binding on each participant.

8. The contest and awards made in connection with the contest are subject to all applicable local, state, and federal laws and regulations.

Address all entries to: General Motors Better Highways Awards, General Motors Bldg., Detroit 2, Mich.

COMMERCIAL CAR JOURNAL, December, 1952

How to Stop a Truck

Continued from Page 122

current sensitive relay used could not carry as heavy a current as was needed to energize the solenoid. Another relay that was big enough to carry this solenoid current was therefore introduced.

In the third or valving circuit, the closing of the switch in the second relay permits power from the battery to flow through the coil of the solenoid valve, closing off the flow of pressure

to the brake. Whatever pressure existed in the brake's chamber is released to the atmosphere.

The sensing circuit initially signaled a wheel slow down. This signal eventually caused the brake valve to open and relieve the excessive brake pressure. Succeeding signals by the sensing circuit, while the wheel's rpm was recovering, kept the circuits energized and the brake valve open until the wheel had again reached its proper speed. When the wheel speed stabilizes and the sensing signal ceases, the brake valve again closes admitting pressure

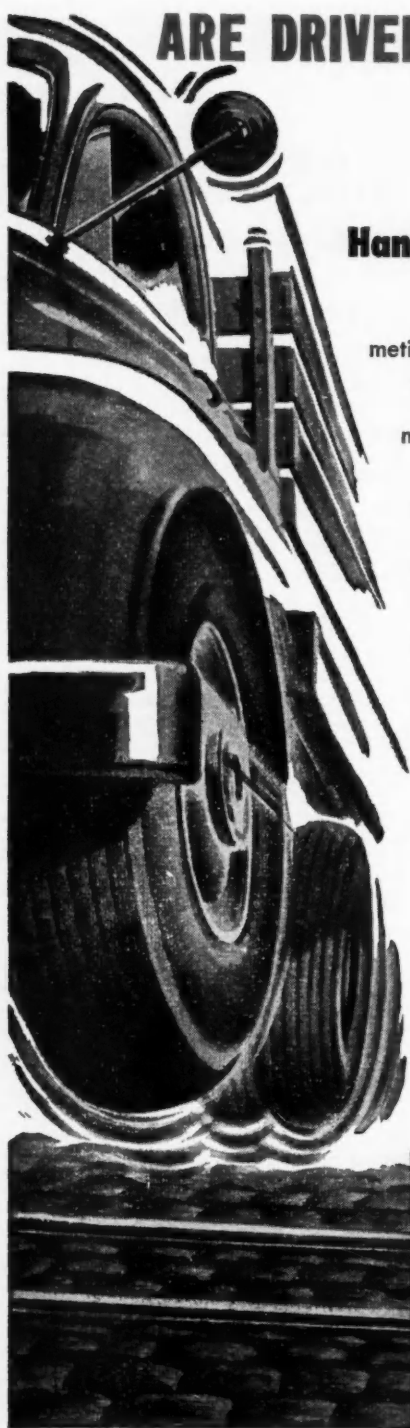
to the brake chamber and the cycle of control has been completed.

Editor's Note:

Mr. Gunsaulus closed his discussion at the T & M meeting in Pittsburgh with the suggestion that more work be done with this device in a move to perfect it for motor carriers. Movies shown at the meeting indicated clearly that, as he phrased it, "rolling wheels gather no skids." The device obviously is worth a study by transport men but will need bugs ironed out before it is practical for a truck tractor. Goodyear is not prepared to conduct further tests — does not contemplate manufacture of the unit for the motor truck field, though the device is currently used on aircraft. It is expected that you will hear more about this limiting device for stabilizing braking under adverse conditions in the future.

END

Please Resume Reading Page 68



ARE DRIVERS "RAILROADING" YOUR VEHICLES?

Handy Governors Will Stop It

Any driver is likely to be less than meticulous in his care of a vehicle he doesn't own. Many feel no compunction about "railroading" your vehicles. Drivers do most of their work away from supervision . . . abuses are hard to correct.

Handy Governor will stop "railroading" — stop practices which run up costs and wear out vehicles before their time.

The savings in tire, fuel, and lubricant costs, engine repairs, brake maintenance and general maintenance are spectacular. Reduced accident and insurance costs are equally important.

Let us show you some figures on savings — and tell you how little it costs to get them.



KING-SEELEY CORPORATION

ANN ARBOR, MICHIGAN

PLANTS AT
ANN ARBOR, SCIO,
YPSILANTI

NoSpin Clutch for Transfer Cases

ONE of the latest developments released by the Detroit Automotive Products Corp. is the NoSpin overrunning clutch for installation in transfer cases, drop cases, or combinations in multi-axle vehicles. Designed to provide a positive drive from a single input source to dual output shafts, it will also permit a difference in the relative speeds of these shafts. In many respects, this device is similar to the well-known NoSpin differential.

Each output shaft receives driving torque when the speed of both shafts is identical. However, if one shaft is caused to rotate faster than the other, it will be released from its central driving member or spider and permitted to overrun until shaft speeds become the same. Either output shaft is free to rotate faster than the driving element if caused to do so by external forces. However, neither output shaft is permitted to rotate slower than the central driving member.

Whenever one shaft is overrunning it receives no torque since all driving torque is then transferred to the slower running shaft. When the overrunning shaft slows to the speed of the other shaft it becomes engaged and driving torque is distributed equally between the two shafts.

The basic structural design of the NoSpin overrunning clutch is similar to the NoSpin differential.



TRANSPORTATION GASOLINE ENGINES

Model	Cyl.	Bore	Stroke	Displ.	Bare Engine H.P.
N4062	4	2½	3½	62	26 @ 3400 RPM
Y4069	4	2½	3½	69	28 @ 3400 RPM
Y4091	4	2½	3½	91	36 @ 3400 RPM
F4124	4	3	4½	124	47 @ 3200 RPM
F4140	4	3¼	4½	140	52 @ 3200 RPM
F4162	4	3¼	4½	162	58 @ 3200 RPM
F6186	6	3	4½	186	77 @ 3500 RPM
F6209	6	3¼	4½	209	90 @ 3500 RPM
F6226	6	3¼	4½	226	99 @ 3500 RPM
M6271	6	3¼	4½	271	97 @ 3000 RPM
M6290	6	3¼	4½	290	108 @ 3000 RPM
M6330	6	4	4½	330	125 @ 3000 RPM
K6271	6	3¼	4½	271	115 @ 3200 RPM
K6290	6	3¼	4½	290	123 @ 3200 RPM
K6330	6	4	4½	330	145 @ 3200 RPM
B6371	6	4¼	4½	371	124 @ 3000 RPM
B6427	6	4¼	4½	427	142 @ 3000 RPM
T6371	6	4¼	4½	371	144 @ 3000 RPM
T6427	6	4¼	4½	427	166 @ 3000 RPM
U6501	6	4½	5¼	501	178 @ 2600 RPM
R6513	6	4½	5¼	513	180 @ 2800 RPM
R6572	6	4¾	5¼	572	200 @ 2800 RPM
R6602	6	4¾	5¼	602	212 @ 2800 RPM
S6749	6	5¼	5½	749	250 @ 2800 RPM
S6820	6	5¼	5½	820	277 @ 2800 RPM

TRANSPORTATION DIESEL ENGINES

Model	Cyl.	Bore	Stroke	Displ.	Bare Engine H.P.
TD6427	6	4¼	4¾	427	116 @ 2400 RPM
RD6572	6	4¾	5¼	572	156 @ 2200 RPM
SD6802	6	5¼	5½	802	218 @ 2200 RPM

Cut Hauling Costs ...with Specialized RED SEAL POWER

No matter what your hauling job, it's wise to choose a vehicle with a Red Seal under the hood. In that way, you get the benefit of truly specialized power, for there's a Red Seal engineered to the needs of every transport job. Continental builds 25 different gasoline models, from 26 to 277 h.p.—plus three Cushioned Power Diesels with bare engine horsepower ratings of 116, 156 and 218—all for transportation use. For lowest ton-mile costs throughout the life of the vehicle, choose a make with Continental Red Seal. Save, too, by replacing old engines in present equipment with the right Red Seal from the accompanying list.



PARTS AND SERVICE EVERYWHERE

Continental Motors Corporation

MUSKEGON, MICHIGAN

*First Specify Tandems
Then Specify Hendrickson*

first
name in Tandems

The History of Hendrickson is one of being **FIRST**. The Hendrickson automotive "family" designed and built the



first

American Worm Drive Axle

the **first** Hollow Spoke Cast Steel Wheel



the **first**

Coil Overloading Spring

the **first** Practical Tandem Axle Unit.

Hendrickson's one basic design is right for all Tandem applications. Below axle load suspension provides greater leverage, eliminates "chatter," increases tire life. The equalizer beam distributes weight equally between axles, regardless of transport conditions—cuts road bumps 50%. Ball and socket joints provide the flexibility necessary for smooth Tandem operation; the torque rods absorb all axle torque.

Hendrickson manufactures a complete range of sizes—22,000 lbs. to 60,000 lbs.—each with the same basic design.



**HENDRICKSON
TANDEM**

SPECIFY **first** **NAME IN**
HENDRICKSON **TANDEM**

HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

Safety Congress

Continued from Page 72

last year received a dividend of \$67,000, as compared with \$15,000 in 1949, because its loss ratio had been cut to less than half. "Safety first," he added, "means smoother operation, better production, improved supervisor-employee morale, better public relations, avoidance of human suffering."

E. G. Cox, chief, Section of Safety, I.C.C. Bureau of Motor Carriers, reviewed highway safety problems of the day. He first recognized that today's steadily increasing transportation volume on our existing highways naturally involves increasing operations risks. But there are no corresponding observable increases in use of tools essential to accident control.

He stressed need of stricter application of safe-driving qualifications in driver selection and training; also commenting that the drivers themselves, and their unions, ought to be anxious to do this merely from the viewpoint of their own health and bodily protection.

The manufacturers, he commented, are steadily improving operating equipment; but it is plainly evident that many motor fleet operators are slack in their motor-fleet maintenance. Hence, the need of "further regulations" for the general protection of highway transportation. He mentioned that the ICC Section of Safety is now experimenting with a program through which this type of operator, when proved to be a persistent violator of standard highway regulations, might be permanently restrained from highway use.

Arthur E. Nichols, director of safety and personnel, The Willett Co., Chicago was discussion leader for a panel discussion on "Building Safety Into The New Employee." The viewpoint on "driver training" was presented by A. E. Bauman, director of safety and personnel, Olson Transportation Co., Chicago. Considerable discussion was stirred by Frank Worken when he explained the safety training program for driver-salesmen groups in ten different city plants of Interstate Bakeries Corp., Kansas City, Mo. This included the establishment, by each group, of their own developed driver-experience "standards," such as gas mileage, tire mileage, etc.

W. Earl Givens, Jr., director of safety and personnel, The Geo. F. Alger Co., Detroit, applied control of terminal accident hazards especially to the problems of injuries from materials han-

(TURN TO PAGE 130, PLEASE)

from Gates Truck Belts

On this page are just a few users of Gates Truck Belts.

Every one of them will tell you that Gates Truck Belts save them from 50% to 80% in belt replacement costs alone.

In addition, there is another saving that is even more important...

This Belt Reduces Road Delays—

—helps keep trucks on schedule, helps get shipments delivered *on time and at a profit.*

Delays on the road naturally disappoint your customers. *Worse than that*, road delays cut into the *net operating time* of your units and this *really costs you money!*

If you will consult with any of the operators whose names appear on this page, we know you will find their savings from using Gates TRUCK and BUS Belts are so substantial that you will certainly want to have the advantage of these savings for yourself.

There are Gates Belt Jobbers in every distributing center who can supply the belts you need promptly.

THE GATES RUBBER COMPANY
DENVER, U. S. A.
World's Largest Makers of V-Belts

LOOK FOR THIS T*

on the belt label and also on the belt itself! The "T" is your insurance of a belt specially engineered for Trucks and Buses. To get 50% to 80% more service out of fan belts be sure they are marked "T".

*Reg. U.S. Pat. Off.



Thousands of fleets use Gates Truck Belts...

Here are just a few users. Ask any one of them how much he saves in belt costs—and road delays—by using Gates Truck Belts!

SPOKANE, WASH.

United Truck Lines, Inc.

LUBBOCK, TEXAS

Lubbock Bus Co.

HOLYOKE, MASS.

Holyoke St. Railway Co.

AKRON, OHIO

Yankee Lines, Inc.

MEMPHIS, TENN.

Gordon's Transport, Inc.

KANSAS CITY, MO.

Kansas City Police Dept.

CHICAGO, ILLINOIS

National City Lines

BUFFALO, N. Y.

Buffalo Transit Co.

POCATELLO, IDAHO

Garrett Freight Lines

LOS ANGELES, CALIF.

Asbury Transportation Co.

DENVER, COLORADO

Pacific Intermountain Express (PIE)

ST. PAUL, MINN.

Glendenning Motorways, Inc.

DETROIT, MICHIGAN

Red Star Transit Co., Inc.

OMAHA, NEBRASKA

Overland Greyhound Lines

FORT WAYNE, INDIANA

Fruehauf Drive Away Co.

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CINCINNATI, OHIO

Cincinnati Street Railway

LOUISVILLE, KY.

Ewing-Von Allmen Dairy Co.

PHOENIX, ARIZONA

Fisher Contracting Co.

WELLSBORO, PENNA.

H. W. Taynton Truck Lines

& BUS V-BELTS

Safety Congress

Continued from Page 126

dling. "In the trucking industry," he said, "good practices in materials handling have never been crystallized."

Results from the Clintonville Winter Driving Hazards Tests, to date, were reported by T. J. Carmichael, administrative engineer for General Motors Proving Grounds at Milford, Mich. The complete tests would require considerably more time, he reported. Prob-

lems involve side and rolling tire resistance on slippery surfaces, as an aid in development of vehicle control mechanical devices and driving practices.

Dr. Harold Brandaleone, medical director of Third Avenue Transit Corp., New York City, reviewed the "improved medical service program" which was established in 1947 for the Third Avenue Transit System, New York City. This included, as he stated, "improved clinic facilities for on-the-job medical care, careful pre-employment medical examination, meticulous study

of all operators involved in accidents and periodic examination of bus operators."

This had resulted, he stated, in large reductions in illness and compensation cases, large reductions in accident rates by the so-called accident repeaters, and large financial savings to the company. As one of his conclusions, he stated that "only a mentally and physically fit operator can be a good and safe operator, and a company is only as good as its operators."

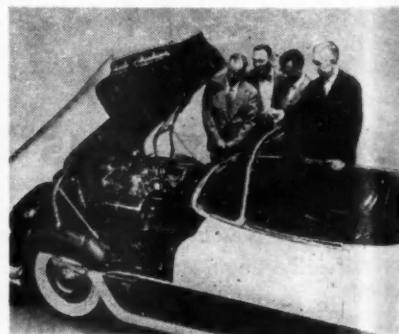
Following are the new officers elect for the Commercial Vehicle Section: Central chairman, M. R. Jensen, superintendent of transportation, Consolidated Freightways, Portland, Oregon. Vice-chairman, W. T. Gowens, director of safety and personnel, Pilot Freight Carriers, Inc., Winston-Salem, N. C. Immediate past general chairman, C. D. Calkins, director of safety, Pacific Motor Trucking Co., San Francisco. Secretary, F. J. Wirken, director of safety and personnel, Kansas City, Mo.

The new officers for the Transit Section are: General chairman, C. Dobell, British Columbia Electric Ry. Co., Ltd., Vancouver, B. C. First vice-president, L. D. Dale, Beloit Bus Co., Beloit, Wis. Second vice-president, J. S. Osborne, Cincinnati. Newport and Covington Railway Co., Covington, Ky. Third vice-president, Lee Mills, The Cincinnati Street Railway Co., Cincinnati, Ohio. Immediate past chairman, M. G. Bullock, Transit Casualty Co., St. Louis. Secretary, J. G. Butler, Capital Transit Co., Washington, D. C.

END

Please Resume Reading Page 73

\$1,000,000 Worth



Insured for \$1,000,000 this Buick XP-300, super-streamlined convertible, will be displayed at the AC Spark Plug division of General Motors booth at the annual Automotive Service Industries Show to be held next week in Atlantic City, N. J. In addition to the spark plugs and oil filter, AC Spark Plug engineers were called on to design nine other specially built parts for the car.

WESCO

TIRE CHAINS

Guard Against
Losses and Liability

Act now and you'll sleep better during this winter's snowy, blustery nights. See that each vehicle is equipped with reliable WESCO TIRE CHAINS and reduce risks of serious losses—losses of loads and damage to equipment . . . losses from skids, stalling, late delivery, or accident. Standardize on dependable long-wearing WESCO TIRE CHAINS, and keep your stock rolling along safely, and on schedule.

Write now for Catalog showing
WESCO TIRE CHAINS for every need.

WESTERN CHAIN COMPANY

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Page 73

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WHAT D'YA MEAN HEAVY DUTY?

WIX HEVI-DUTY Cartridges are Built for HD Oils and Heavy Duty Service!



WIX-PAX FOR FLEETS

Here's a money-saving service that brings genuine, top grade WIX HEVI-DUTY Cartridges direct to you from the factory (or our Pacific Coast or Dallas warehouse). Shipped prepaid in assortments of your choice packed in standard cartons (12 or 24 Sock Type . . . 12 Can Type) in shipments of 100 pounds or more. You can order through your local jobber for direct factory shipment. Write us for prices and details.

Whether it's long hauls over the open road or stop-and-go driving in city traffic, it all adds up to heavy duty, engine punishing service. WIX HEVI-DUTY Cartridges are made to take that punishment because they contain the exclusive filtrant WIXITE. It traps more dirt, grit and sludge in every type of oil and does not disturb detergent-dispersant additives in Heavy Duty oils.

WIXITE is the modern depth type, electronically-controlled filtrant that features a springy, non-resinous wood fibre, treated for 18 months to 2 years before careful blending with white cotton threads. This creates the famous resilient density WIXITE that protects fleet engines so well and stretches out your lubricating oil mileage.

Take advantage of the money-saving WIX-PAX service which brings you direct-from-the-factory shipments of these genuine WIX HEVI-DUTY Cartridges (not second grade substitutes). Your Jobber will give you full particulars.

wix



OIL FILTERS CARTRIDGES

WIX ACCESSORIES CORP. • GASTONIA, N. C.

CANADIAN FACTORY: WIX ACCESSORIES CORP., LTD., 25 CURITY AVE., TORONTO 13, ONT.

Magnesium Service Problems

Continued from Page 64

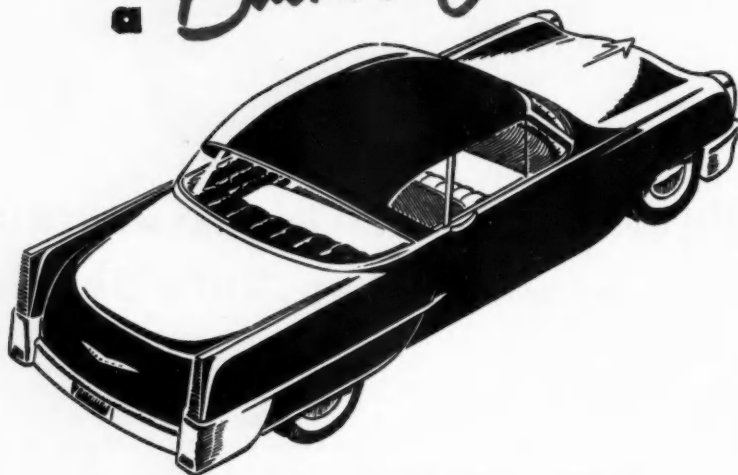
It is necessary that he realize the most effective way to make steel to magnesium couples ineffective is to inhibit the action of the steel.

This can be accomplished by painting steel structural members and using only cadmium or zinc-plated bolts, nuts, screws, or other fasteners or hardware fixtures. He must realize that even

when he pacifies the steel by one of these methods, it is necessary to use a shim or washer of 52S or 61S aluminum alloy between the steel and magnesium. To be effective, these shims or washers must overhang the joint by a minimum of one-quarter inch. Fabricators who understand and realize the seriousness of galvanic corrosion are not

would you call THIS

"Bucket of Bolts?"



In the days when the horse and buggy was giving way to the "horseless carriage" the die-hards referred to the automobile as a "bucket of bolts".

It was true then, as it's true now, that hundreds of nuts and bolts are used in the manufacture of every car.

Without fasteners there would be no automobiles as we know them.

Yes, fasteners are important in repair work as well as for original equipment. That's why most independent and fleet repair shops specify Lamson & Sessions fasteners when ordering from their jobbers.



The **LAMSON & SESSIONS Co.**

1971 West 85th Street • Cleveland, Ohio

Plants at Cleveland and Kent, Ohio • Chicago • Birmingham

ONE OF THE WORLD'S LARGEST MANUFACTURERS OF AUTOMOTIVE FASTENERS

troubled with service failures due to this cause.

A few other problems were encountered when using magnesium in the transportation field. Trucking companies are particularly conscious of paint-adhesion problems because it is common to use expensive advertising art work incorporated with the paint job. Dow No. 1 chemical treatment and Army-Navy Specification Primer does not result in consistently satisfactory paint adhesion as used in the average paint shop. Where this is a problem, it is frequently solved by the substitution of a newly developed type of primer based on polyvinylbutyl and other modifying resins.

Fretting problems have been encountered in one particular situation. It is customary to use a wooden filler strip between the frame and truck body. The problem is encountered at the magnesium, wood interface. Magnesium oxide and other foreign abrasive materials may imbed in the wood and cause excessive abrasion of the magnesium. The installation of a steel wear strip at these points has eliminated the problem. While we are discussing magnesium-to-wood contacts, it would be wise to mention one other possible source of trouble. It is necessary that the wood be sealed and painted and the magnesium primed and painted at these joints. This is necessary to prevent the leaching out of the acids from the wood and resulting attack by these acids on the magnesium.

Magnesium in Cars

By **F. H. Mason**

Chrysler Corp.

WE sincerely believe, as a result of experience to date that no serious objections have been encountered which would restrict the application of large volumes of magnesium to the automobile. Parts of the following type are in production or have been used in production: clutch housings, torque converter housings, transmission parts, oil seal plates, steering column shrouds, steering column brackets, fan spacers, convertible folding top pillars, rails, and hinges, instrument panel housing and bezels, generator end plates.

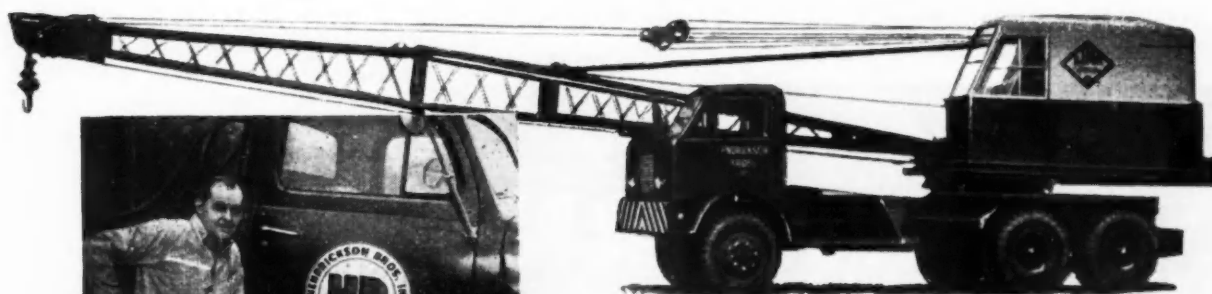
Corrosion

GENERALLY speaking, a serviceable automotive part is not one which suffers no corrosion but rather

(TURN TO PAGE 134, PLEASE)

Hendrickson Bros. say:

"We save time and speed repairs by stocking oil seals in our shop!"



Charles Czik
Fleet Foreman

Hendrickson Bros. of Valley Stream, Long Island, operates a fleet of 1,100 units including everything from bulldozers and power shovels to pickups and company sedans.

Fleet Foreman Charles Czik's policy is "new oil seals every time one is removed." This goes whether it's a major overhaul, a repair job or merely a routine preventive maintenance inspection. Mr. Czik points out that his shop stock of 7,500 seals is a real time-saver since the right seal for almost any equipment is always on hand when needed.

Do as America's leading fleets do. Install new National Oil Seals every time an old seal is removed—for any reason.

"Every time you take out an oil seal,
replace it with a new National seal"



OIL SEAL STOCKS TAILORED FOR YOUR FLEET

For greater shop efficiency and less "down time", let your parts jobber put in a National Oil Seal stock, custom-tailored to your needs. He keeps the stock up—no extra work for you.

NATIONAL MOTOR BEARING CO., INC.

General Offices: Redwood City, Calif.
Plants: Redwood City, Calif.; Van Wert, Ohio



Magnesium Problems

Continued from Page 132

one whose function is not impaired through corrosion even under conditions judged to be of the greatest severity. Considerable doubt was originally present as to the ability of magnesium to withstand the effects of the chloride road salt used throughout the Winter in cities such as Detroit, Cleveland, etc. Cars operating in these localities are exposed to constant salt action for the four Winter months.

Parts such as clutch and torque converter housings on the underside of the car would be constantly exposed. It should be mentioned that identical doubt existed and exists today with regard to aluminum under the same conditions of service. Because road tests of this type are necessarily time consuming and no casting dies existed, the parts originally procured for test were sand cast magnesium. Results after approximately three years' service clearly indicate that corrosion of the magnesium, under exposure encountered by road salts and in locations such

as the underside of the car, is not of sufficient severity to restrict its application. Tests were conducted on unpainted castings with no attempt to insulate galvanic action from contact with iron, steel, or copper alloys.

Service test data were also obtained on parts exposed to action of very corrosive fluids such as coolants and brake fluids. Results clearly indicated that, unless protective chemical treatments or coatings could be supplied, magnesium could not be utilized in such applications.

With regard to painted magnesium castings used in decorative or functional parts such as steering column shrouds, fold top pillars, etc., no instances of undesirable corrosion have been encountered in over two years' production service.

Stress

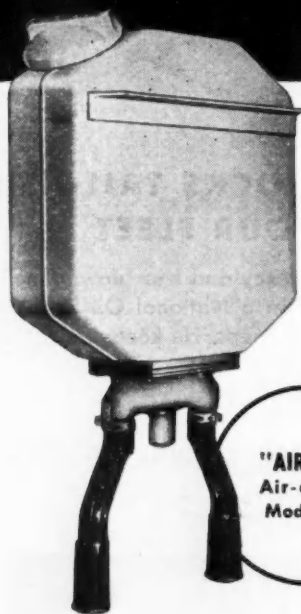
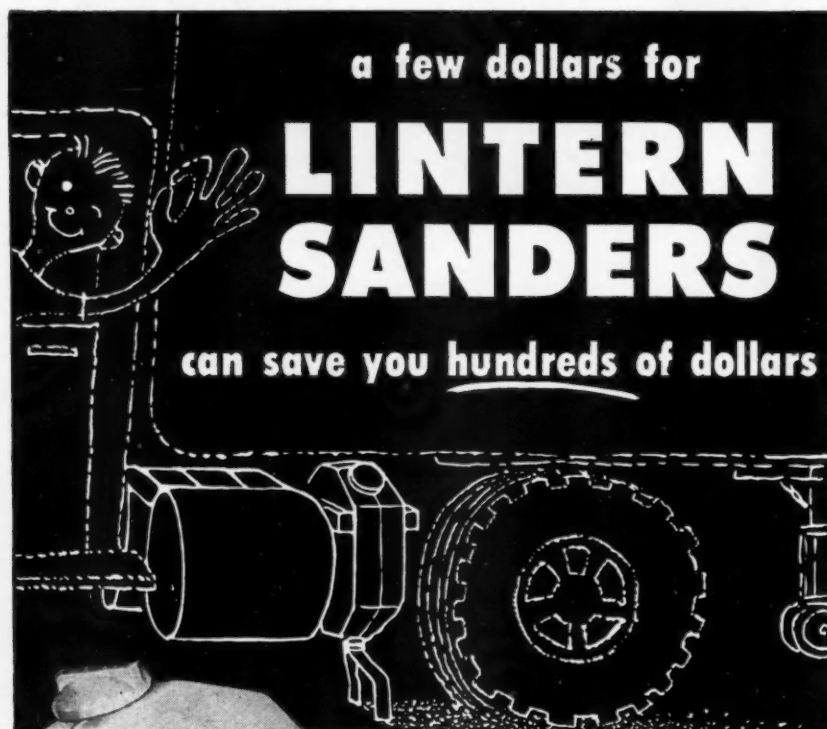
SOME of the castings presently released for production must carry high static and fatigue loads. Doubt existed as to the ability of the magnesium to satisfactorily carry such loads with particular reference to its somewhat indefinite yield point and its questionable notch sensitivity in fatigue. After a considerable period of car testing under the most severe conditions and part testing in the laboratory we have reached the conclusion that magnesium and aluminum can be released as optional materials for a particular design. It has further been found that the design modifications necessary to change a cast iron part to magnesium are not sufficient magnitude to prevent obtaining the full reduction as anticipated from specific gravity comparison. A possible exception to these general statements would be in the case of a part where deflection was the major consideration.

Wear

WHILE magnesium has always been praised as an excellent bearing material and undoubtedly is, some adverse factors have been experienced in running steel valves, shafts, etc. in cast magnesium parts. It appears that when loads are high the magnesium will develop a rapid wear pattern and that the metal is particularly susceptible to abrasion and scratches from dirt or sharp corners. It also seems that adequate lubrication must be supplied where steel is running in magnesium at high speeds to avoid seizure. We believe, therefore, that some form of hard surface coating will be necessary in many applications to prevent undue wear.

END

Please Resume Reading Page 65



1. Sure traction on slippery, icy roads.
2. Air-operated or vacuum-operated.
3. Nozzles are patented — weatherproof.
4. Positive operation in all kinds of weather.
5. Thousands in use — proved in service.

Ask your distributor for
LINTERN SANDERS
or write us direct

THE LINTERN CORPORATION

P. O. BOX 428

PAINESVILLE, OHIO

Driver Selection

Continued from Page 59

3. Physical laws, affecting operation.
4. Vehicle maintenance.
5. Mechanical knowledge.
6. Accident reporting.

A very small sample of a knowledge test developed by the author is included with this article. It will be noted that this is a multiple choice test and is designed to quiz the candidate on his knowledge of basic traffic regulations (including the Uniform Act regulating traffic on highways, the ICC Motor Carrier Safety Regulations, and the Uniform Traffic Control).

In all, this particular written examination contains 40 questions, 60 per cent of which cover the basic operation of the vehicle, about 32 per cent signs, signals and markings and 8 per cent or three questions on the driver himself, such as the handling and reporting of accidents.

Of course, there are any number of standard written tests available from such sources as: Highway User Associations, State Licensing Bureaus, Insurance Companies, Safety Councils, etc., but the point to remember is to have a test that is sufficiently complete and properly designed so as to show at a glance whether or not the candidate really knows the rules of the road.

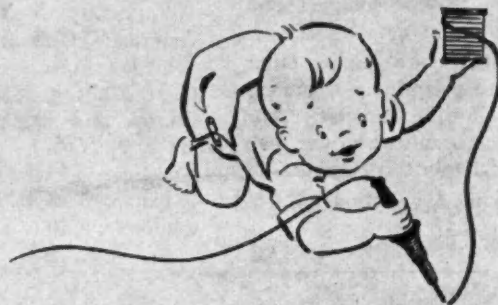
Psychophysical Tests

A DETAILED treatment of psychophysical testing and testing devices cannot be included in this article. So involved and broad is the scope of this subject that a book would be required to consider its many aspects. But it has been the writer's experience that certain types of psychophysical tests have proven useful in the accident prevention program, whether used as selective or informational devices. These include tests for:

1. Visual Acuity.
2. Depth Perception.
3. Peripheral Vision.
4. Color Perception.
5. Foot Reaction Time.
6. Hearing.

Apparatus to give these tests is generally bulky and unwieldy. Some years ago the writer conceived the idea of incorporating the test devices in a suitcase-size portable apparatus. The public demand for the device resulted in formation of the Porto Clinic Instruments Co. of New York, which improved the design and now supplies these test devices to a world-wide market of motor transport companies, commercial organ-

(TURN TO PAGE 138 PLEASE)



SO SIMPLE...



KESTER ACID-CORE SOLDER

SO SIMPLE to do the best work
with Kester the best Solder

On every job, dollars are spent for labor but often only a fraction of a cent for the solder. The use of Kester, the original Flux-Core Solder, can easily be the difference between profit and loss.

It's so simple to be *sure* with Kester Acid-Core and Plastic Rosin-Core Solders, the products with the same features today that made them worthy of imitation 25 years ago.

KESTER SOLDER COMPANY
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Newark 5, New Jersey • Brantford, Canada

**KESTER
SOLDER**

Driver Selection

Continued from Page 137

izations, schools, government agencies and others who seek a compact and reliable psychophysical device.

Of course there are many other sources for testing equipment, among them are the following associations or manufacturing companies who can give the fleet men advice in this regard:

American Trucking Associations, Washington, D. C.

Porto-Clinic Instrument Company, New York, N. Y.

National Safety Council, Chicago, Ill.

American Automobile Association, Washington, D. C.

National Conservation Bureau, New York City, N. Y.

American Optical Company, Southbridge, Mass.

C. H. Stetling Company, Chicago, Ill.

Bausch and Lomb Company, Rochester, N. Y.

Keystone View Company, Meadville, Penna.

Center for Safety Education, New York

Univ., New York, N. Y.

Institute of Public Safety, Penna. State College.

Automobile Safety Foundation, Washington, D. C.

A final appraisal of psychophysical testing shows:

1. Such tests are desirable, either for driver selection or driver education.

2. Drivers made aware of weaknesses, as indicated by such tests, will tend to compensate, particularly after remedial training.

3. Test findings constitute only part of the necessary inventory of the characteristics and aptitudes related to safe driving.

4. The supervisor should understand the values and limitations of each battery of tests used.

5. In selection of drivers the findings of psychophysical tests should be evaluated with other important factors such as ratings of the driver's general health, age, physical condition, attitudes, road test performance, skill, experience, literacy, accident record, and driving knowledge.

Performance Tests

THERE are, of course, two general types of road tests used by the average fleet supervisor:

1. The driving range or off-highway test.

2. The in-traffic road test.

The driving range or off-highway test provides the ideal training ground for the beginner driver or one not familiar with the particular type of vehicle involved. It is free from traffic hazards and affords the supervisor an excellent opportunity to evaluate the applicant. He can then decide whether the applicant should be turned down, or whether he is a safe risk for the more complex road test to follow. However, most fleet supervisors employ the in-traffic road test, which permits observing the driver under actual driving conditions.

The first phase of the road test should be the frequently overlooked *before operations check*. Here, the supervisor can check the driver's understanding of controls, gages and operations—and to correct errors *before* they result in breakdowns, accidents or other delays.

In the "Before Operation Check" recently developed by the writer, provision is made for requiring the examinee to locate various gages and controls, describe their normal operation, and indicate what action will be taken if they function improperly. Each error and its correction must be brought to the attention of the driver, who signs a certification to that effect. Think what this can mean in terms of action taken by the driver in the event of plugged oil lines, low tire pressure, etc.

(TURN TO PAGE 140, PLEASE)

STOP COSTLY SKID ACCIDENTS

Penetred®
THERMODUCTOR
SKID-CONTROL COILS
FOR ALL YEAR 'ROUND

Penetred THERMODUCTOR Steel Claws give you Skid-Control and MAXIMUM DRIVING SAFETY all year 'round . . . Claws that cut thru ice and snow in winter, and slick road film in summer, for INSTANT ACTION . . . DEPENDABLE ACTION. No precious time wasted, no turning on the switch, and waiting for sand or grit . . . just apply the brakes, for SAFE Straight Line Stops . . . or step on the gas, for FASTER Starts without side Sway or slip.

COOLER RUNNING

Penetred THERMODUCTOR Coils also reduce excessive heat that destroys vital tread rubber in regular tires, by conducting it out of the shoulder area . . . to give you the COOLEST running tire ever known.

FEWER PUNCTURES

Penetred THERMODUCTOR Coils act as an armour plate and reduce punctures from 75 to 90 percent, by shunting off broken glass, nails and many other objects that otherwise cut the carcass, and keep it in better condition for the second and third retread . . . for longer mileage. Some records show from 35 to over 100 percent increase.

Get a Free Demonstration

No words can describe the spectacular performance of Penetred Skid-Control . . . only your foot on the Brakes or on the Gas can tell the story, for there is nothing in the world that gives you the "Feeling of Security" that Penetred gives you all year 'round . . . so get a Free demonstration today . . . in the meantime write for "The MIRACLES of Penetred."

ASK ANY TIRE SERVICE STATION ABOUT "PENETRED"

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OVER 2000 STEEL CLAWS IN EVERY TIRE

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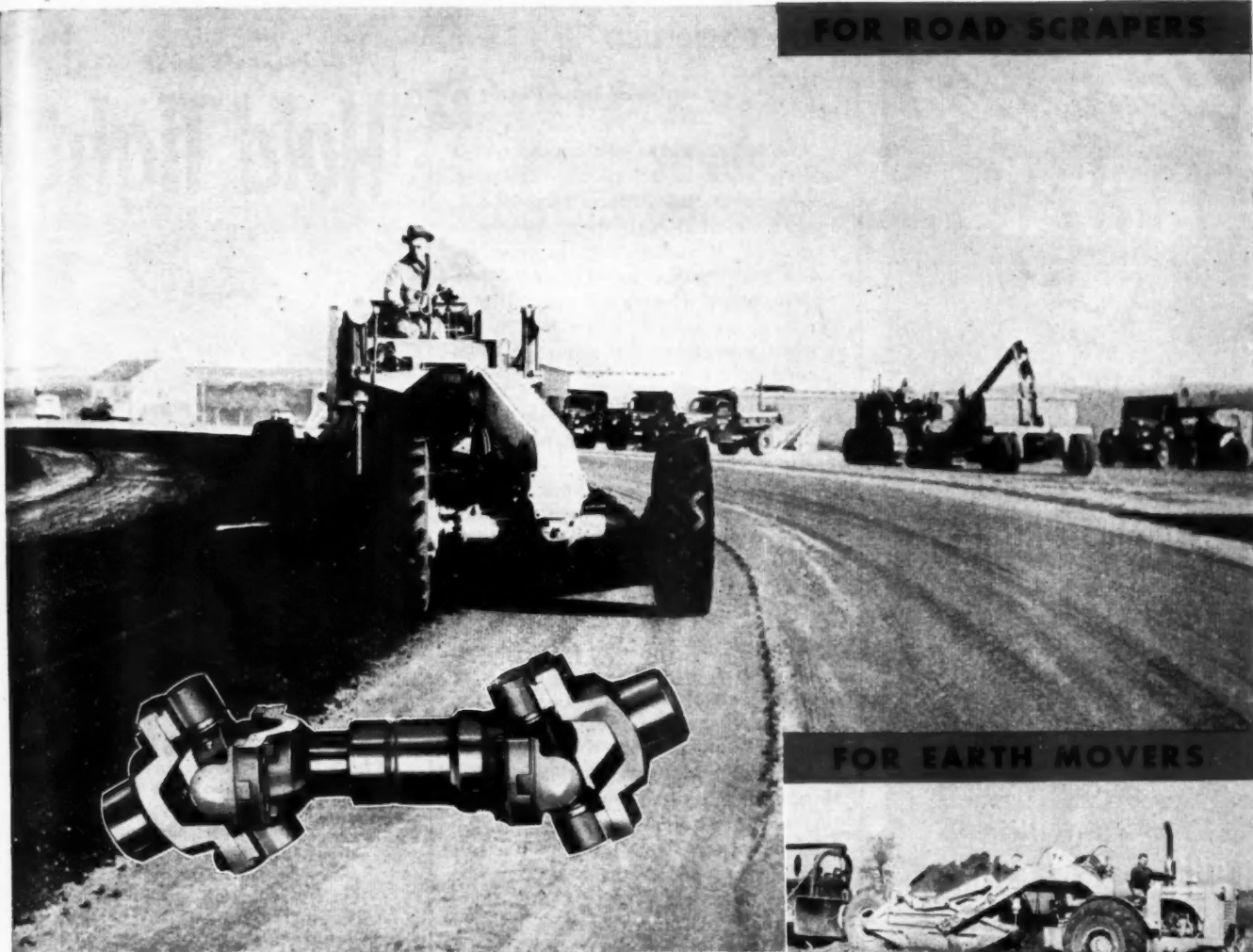
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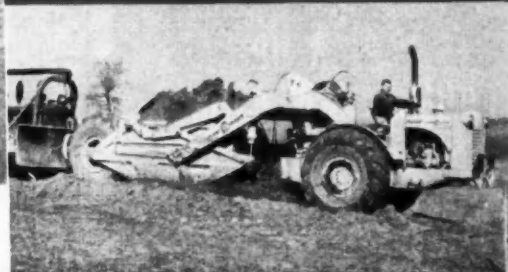
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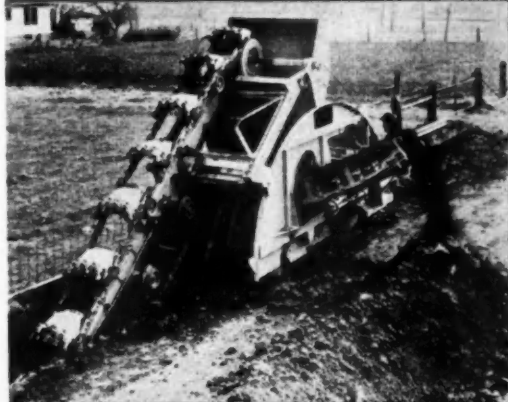
FOR ROAD SCRAPERS



FOR EARTH MOVERS



FOR TRENCH DIGGERS



FOR EARTH LOADERS



MECHANICS JOINTS Are Used on the TOUGH JOBS

Designers with JOINT problems have learned to rely on MECHANICS. Where joints must run all day at constant angles up to 45°—where there are severe shock loads—where wide angles and long slip are common—and where dirt and/or moisture are continually present—MECHANICS Roller Bearing UNIVERSAL JOINTS are the accepted solution. Lubrication is so tightly sealed in that

dirt and moisture cannot enter. If you have a "tough" joint problem, make use of MECHANICS engineers' wide experience.

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UNIVERSAL JOINT
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Cars • Trucks • Tractors • Farm Implements • Road Machinery •
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TRUCK EQUIPMENT



DUMP BODIES
Medium and Heavy Duty

HYDRAULIC HOISTS
For Dump, Grain and
Platform Bodies

**TRAILER DUMP BODIES
& HOISTS**
(with and without trailers)

**PICK-UP
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LOAD-N-GATE
Hydraulic Lift Tail Gates

**LIME-FERTILIZER
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POWER TAKE-OFFS**

**MECHANICAL
POWER CHUTES**
For Coal—Other Material

CEMENT SPREADERS
For Soil Cement Roads

HERCULES
STEEL PRODUCTS CORPORATION
Gallen, Ohio
Dept. 1201

Driver Selection

Continued from Page 138

The second phase of the road test is a supervised *practice run*, unscored, in which the examinee is permitted to become familiar with the vehicle in a safe area. It assures a more representative performance for the scored portion to follow. During the one-half mile practice run the driver will satisfactorily demonstrate the following operations:

1. Start vehicle and pull out.
2. Shift through the complete gear range up and down.
3. Stop at least three times.
4. Turn right and left corners (preferably around stanchions).
5. Back at least 50 feet.

After the practice (or get acquainted) run, the vehicle should be parked and every driving error pointed out to the driver. Before going to the scored portion or the road test, the driver is shown the proper method to offset any mistakes noted.

Let me add, parenthetically, that there can be no question that the ideal method for training and testing the beginner driver is by means of a test vehicle equipped with dual controls. Among commercial drivers this stage has usually become history, but lucky is the supervisor who can avail himself of the driver so trained! One large automobile insurance company (The Farm Bureau of Columbus) has recently announced greatly reduced insurance rates (in states where permitted) to those of the "high-risk" nineteen to twenty-five years old age group who have successfully completed certain accredited behind-the-wheel training courses.

In-Traffic Road Test

THE third phase is the scored performance in traffic, the *road test* itself. It should be conducted on a carefully planned route, at least five miles long, with traffic and terrain representative of those areas where the examinee will be expected to drive in the course of his employment. If possible two miles of the test route should be in the metropolitan area. The following constitutes the minimum problems of a standard road test route: 5 right turns, 6 left turns, 2 intersections, 2 traffic lights or stop signs, 2 slow zones, 1 railroad crossing, 1 steep upgrade, 1 steep downgrade, 1 parallel parking problem, 1 angle parking problem, 1 backing area of 50 ft, 1 offset alley for trucks and trailers, 1 dock for spotting trucks and trailers.

(TURN TO PAGE 142 PLEASE)

"Aero-Seal" HOSE CLAMPS

Hold Tight



Until You Know When!

Your mechanic fits an Aero-Seal Hose Clamp any place he can reach with a thumb and one finger—it locks tight... seals tight—and will hold until "the big freeze." Won't shake loose in a million miles of driving, and can never snap open accidentally.



**REPLACE AND RE-USE
AGAIN AND AGAIN**

If the hose wears out, there's no waiting on the road for a spare hose clamp—no time-killing trip from the shop to the stockroom. A quick twist of the wrist and the band unlocks... ready for use. One clamp may be used and re-used—replaced in any position—year after year.



**SEALS TIGHT—CAN'T
CUT HOSE**

Aero-Seals are scientifically designed to apply pressure evenly all around the hose—won't leak. Vibration-proof. Curved saddle prevents cutting of hose. Stainless steel—won't rust; resists corrosion. Thumb-screw and screwdriver slot types.

**ALL AERO-SEAL HOSE CLAMP
BANDS ARE STAINLESS STEEL**

"Aero-Seal"

WORM DRIVE

HOSE CLAMPS



Another **BREEZE** Product

BREEZE CORPORATIONS, INC.
41 South Sixth St., Newark 7, N. J.

"Tachographs

THE TIME-TESTED RECORDING SPEEDOMETERS

PLAZA EXPRESS CO. SOUTHERN EXPRESS INC.
ST. LOUIS, MO. DALLAS, TEXAS

*Divisions of
Columbia Highway Express System*

Wagner Electric Corporation
6400 Plymouth Avenue
St. Louis 14, Missouri

Gentlemen:

Safety on the highway is vital in getting motor freight through on schedule and in good condition. Plaza Express Company and Southern Express Inc. are hitting hard on safety programs drafted by highly qualified safety engineers.

An important element in these safety programs has been the equipping of all our 315 over-the-road tractors with Tachographs. They record vital information about our units while on the road. We want steadily controlled speeds. We are dead set to prevent the dangerously high speeds that cause accidents, cost lives and damage cargoes.

The results speak for themselves. The Tachographs were installed about eight months ago, when Plaza and Southern were taken over by the Columbia Terminals Company. Before then, frankly, the accident record was unsatisfactory. Since then there has not been a single serious road accident. This record has been established while our equipment has travelled some 16,000,000 miles, much of it on dangerously icy roads. The Tachograph is a big factor in our ability to give the most reliable service possible on tightly controlled schedules.

We bring this to your attention because we believe that the Tachograph is important in making our safety programs so successful.

Yours very truly,

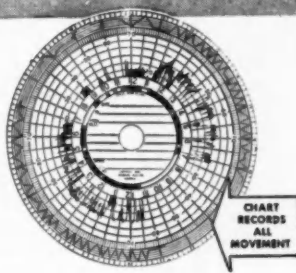
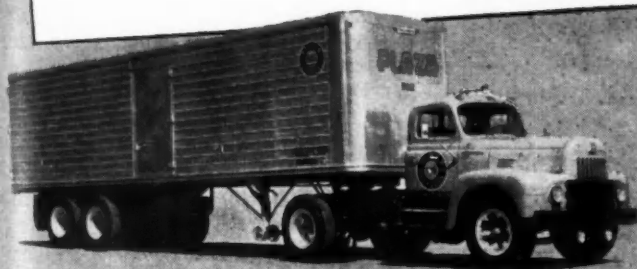
Fielding Childress
Fielding Childress

*are important
in making our
safety programs
successful"*

Says: Fielding Childress, President
COLUMBIA HIGHWAY EXPRESS SYSTEM

Like the Columbia Highway Express System, hundreds of successful fleet operators who have installed Tachographs know that these time-tested recording speedometers have helped them establish enviable safety records. They know, too, that the Tachograph helps make good drivers, protects their rolling stock and reflects in added economies in their over-all operation.

The Tachograph is a scientifically designed, accurate recording speedometer. Easy to install on the dash and connected to the speedometer cable, it gives a complete charted record of all movements of the vehicle—When engine started . . . How long engine idled . . . When vehicle was in motion . . . How fast it travelled . . . When vehicle stopped . . . and Distance travelled between stops. Mail coupon below for full information.



Wagner Electric Corporation

6476 PLYMOUTH AVE., ST. LOUIS 14, MO.

Please send a copy of Bulletin SU-38.

Name and Position _____

Company _____

Address _____

City _____ State _____

We operate _____ Vehicles _____

(NUMBER)

552-7C

DISTRIBUTED BY WAGNER ELECTRIC CORPORATION

COMMERCIAL CAR JOURNAL, December, 1952

Driver Selection

Continued from Page 140

It is especially important to score critically and impartially, since the driver will never be more receptive to correction, and his test driving is usually his best possible performance. Instructions should be clear, and given in advance. There should be no trickery employed. Scoring should be done so as not to distract the examinee. Skill in administering road tests may be

acquired from a publication entitled "Giving and Scoring Driving Tests" (Northwestern University Traffic Institute, Evanston, Ill.) This appears to be one of the best available guides for standardizing and administering the road test, and will be of value to any road test examiner. A driver who has not been given the advantage of a critique of every error noted during the road test is being denied the opportunity to improve the errors of his way. A well administered road test informs both the supervisor and the driver of the observed driving weaknesses.

While the road test, properly administered, provides the most practicable means available for observing the driver's ability, attitudes, weaknesses, and training needs, it also possesses certain weaknesses that must be guarded against. Among them are these:

1. Performance under supervision is usually the best possible effort and may not be representative of "solo" driving.

2. Test shows performance, not potential ability.

3. Complex traffic conditions and hazardous situations rarely can be provided.

4. There is danger of personal bias of examiners.

Thus it is vital that the examiner be properly trained and the proper follow-up training is used to correct weaknesses discovered by the various road tests.

Attitude Tests

PREVIOUS articles in COMMERCIAL CAR JOURNAL (January, 1951—Attitude—Key to Accidents) and (March, 1952—Judging Accident Responsibility) stressed the importance of Attitude, and should be referred to.

The Placement Interview

THE Placement Interview, call it by any name you choose, is probably the most important of all, since it puts test findings to work. Here the supervisor, or preferably a representative of management itself, evaluates the prospective employee on the basis of data that has been accumulated by the five tests previously mentioned.

Here the results are scored, the remarks are made and the supervisor decides whether or not the man is qualified to drive for the particular company involved.

The best available material on the proper handling of this Placement Interview or final determination is a special copyrighted manual prepared by the American Transit Association in New York entitled "The Placement Interview for Transit Employees—A Manual of Instructions." It contains among other features, an actual four-page form which insures consideration of all valid factors in the final evaluation of the applicant.

Conclusion

IN conclusion, it is evident that extensive research in testing the driver—and his supervisor—has begun to show real promise. The battery of tests should be selected to fit the nature of the problem, and may serve as selective instruments or devices for improving performances.

END

Please Resume Reading Page 60

COMMERCIAL CAR JOURNAL, December, 1952



REYCO

Engineered BRAKE DRUMS ARE BETTER FROM THE START BEST FOR THE STOP

**No Brake Can
Be Better Than the
Brake Drum that
Backs it up**

BETTER FROM THE START because of basically-better Reyco Metal, which is formulated to meet the intense demands of today's busses, trucks and trailers.

BEST FOR THE STOP because Reyco offers the design to get top performance from Reyco Metal — uniformly safe, sure and silent stops.

Reyco Engineering provides the type of brake drum required for maximum efficiency, whether plain, ribbed or flanged.

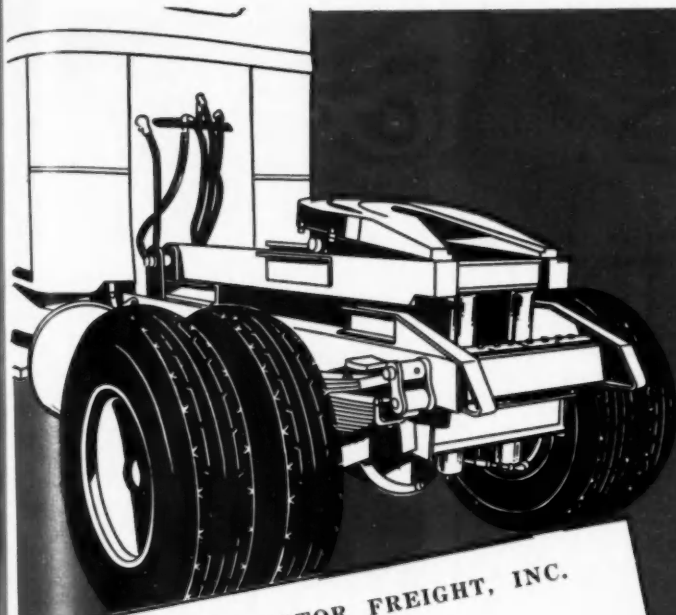
See your nearby Reyco Distributor. He'll help you cut brake drum maintenance costs and reduce costly down-time in your fleet!

Copyright 1952



REYNOLDS MANUFACTURING CO.

SPRINGFIELD, MISSOURI



J. L. BRUNDAGE Mgr. of Maintenance, Lee Way Motor Freight, Inc.

LEE WAY MOTOR FREIGHT, INC.
 1016 S. W. SECOND
 OKLAHOMA CITY 4, OKLA.
 February 25, 1952

Cemco Industries, Inc.
 First National Bank Bldg.
 Galion, Ohio

ATTENTION: H. L. Ekin, President

Dear Mr. Ekin:

About two years ago we purchased a Cemco Trailer Jockey to handle our trailers from our parking lot to our dock. We have found this trailer jockey to be a great time saver in the handling of trailers around our terminal. One man can very easily spot as many trailers with this unit as two men with ordinary switch tractors.

In addition to the handling of trailers at our main terminal, we have been able to save a considerable amount of time in the transfer of trailers to a parking lot that we have located six blocks from our terminal.

This jockey can be used for many different purposes, for instance, a trailer being dropped too low for the average road tractor to get under, we have this plate set low enough that we can slip under and raise it to a position to allow the road tractor to get under.

We think the Cemco Trailer Jockey is a good investment for any company who handles as many as 50 trailers a day around their terminals.

Yours very truly,
LEE WAY MOTOR FREIGHT, INC.
J. L. Brundage
 J. L. Brundage
 Manager of Maintenance

"We think the
 Cemco Trailer Jockey
 is a good investment for
 any company who handles
 as many as 50 trailers
 a day around their
 terminals."

A hydraulic powered fifth wheel — lifts 37,500 pounds with ease. Comes complete with P.T.O. and cab control. Has 11" upward stroke. Fits nearly all 34" to 37" tractor frames.

CEMCO

INDUSTRIES, INC.
 GALION, OHIO

MANUFACTURERS OF: TRAILER JOCKEYS
 • HYDRAULIC TAILGATES • UNDERBODY
 HOISTS • SPLIT-SHAFT POWER TAKE-OFFS
 • MOBILE MACHINE SHOPS



INTRODUCING . . .

...William J. Joyce, Jr., as clutch sales manager, Spicer Mfg. Division, Dana Corp., Toledo, Ohio.

...David Lewis, as sales manager, and Robert F. Costello, former Chicago branch sales manager, on special assignment to Sao Paulo, Brazil, Fruehauf Trailer Co., Detroit.



use only
**FACTORY NEW
GENUINE
BENDIX DRIVES
and
PARTS!**



Repeat business is the foundation on which service profits are built. One of the surest ways to keep customers coming back time and time again is to use only genuine parts in your repair work. When you service Bendix* Drives, be sure to use only *factory new* Bendix Drives and Parts. Your customers will get the same dependable performance built into every original Bendix Drive—performance proven by over 85,000,000 installations. Insist on *factory new* Bendix Drives and Parts when you order from your distributor.

*Reg. U.S. Pat. Off.

Bendix Drive

ECLIPSE MACHINE DIVISION of
ELMIRA, NEW YORK

Export Sales: Bendix International Division, 72 Fifth Ave., New York 11, New York



...E. D. Tull, vice president and general manager, Cummins Engine Co., Inc., Columbus, Ind.



...A. N. Abelson, as vice president in charge of manufacturing, Aro Equipment Corp., Bryan, Ohio.



...Richard T. Karr, assistant to the vice-president in charge of sales, Purolator Products, Inc., Rahway, N. J.

...John H. Bennett, Jr., with headquarters in Cheraw, S. C., and Leslie H. Bobo, with headquarters in Memphis, Tenn., as divisional sales managers, Wilkening Mfg. Co., Philadelphia.

...George B. Bond, sales promotion manager, Alemite lubrication equipment and Stewart-Warner Instrument division, Stewart-Warner Corp., Chicago.



...Thomas J. Totten, on the advertising and sales promotion staff, The Four Wheel Drive Auto Co., Clintonville, Wis.



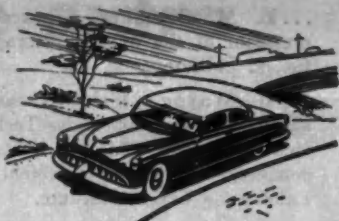
...R. J. Sigatoo, bus division chief engineer, The Flexible Co., Loudonville, Ohio.

...E. W. Robertson, Pittsburgh, Pa., as Allegheny division district used trailer sales manager, Fruehauf Trailer Co., Detroit.

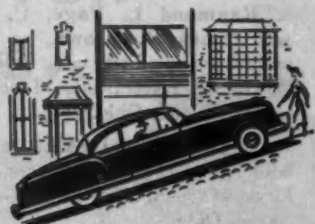


...L. T. Thompson, left, Fort Worth, Texas, branch manager, and William M. Tobin, right, Boston, Mass., branch manager, The White Motor Co., Cleveland, Ohio.

(TURN TO PAGE 146, PLEASE)



No Missing on Turns



Instant Starts on Hills

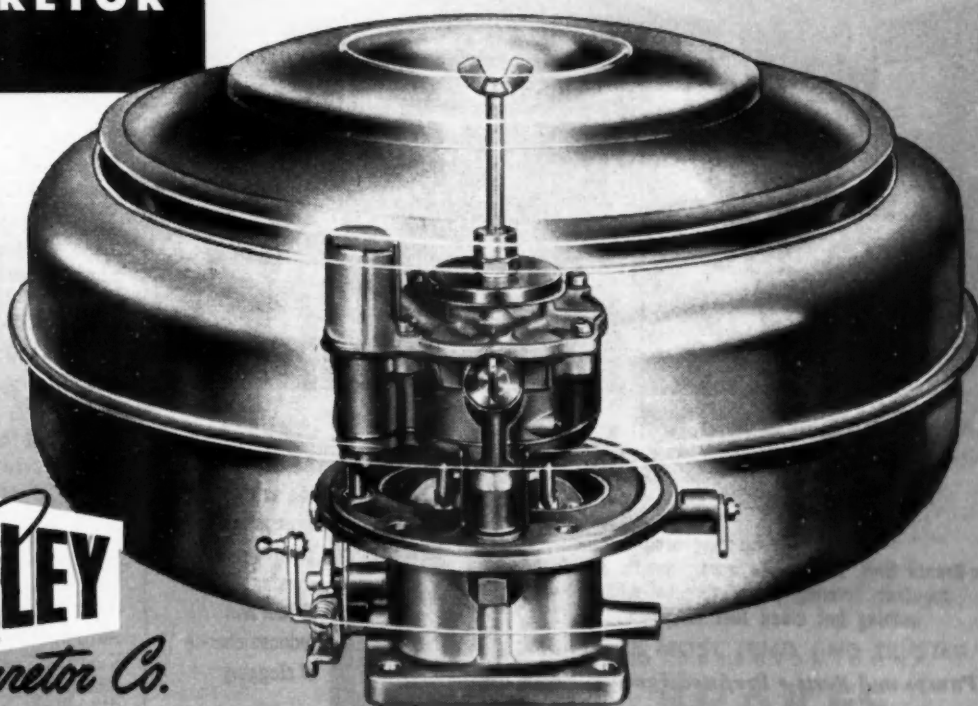


No Percolation

THE HOLLEY CENTRI-FLO CARBURETOR

FOR MORE THAN
HALF A CENTURY
ORIGINAL EQUIPMENT
MANUFACTURERS FOR
THE AUTOMOTIVE
INDUSTRY

HOLLEY
Carburetor Co.
DETROIT 4, MICHIGAN



Smooth Performer

None but a true concentric carburetor can produce the constant fuel flow needed for smooth engine performance during fast stops and starts and during sharp turns. The Holley Centri-Flo, a true concentric carburetor, is now in use on many of the nation's most outstanding automobiles.

True concentric carburetor design requires the location of the main jets and power valve in the center and bottom of the float chamber. Also the float chamber itself must be centrally located. By keeping the discharge point centrally located, there is always an adequate fuel level regardless of the angle of the engine.

The Centri-Flo prevents percolation because of its fully insulated fuel bowl.

The Centri-Flo is the Holley model 1901. It is designed for engines of 110 to 180 H.P.

1-17

Introducing . . .

Continued from Page 144

...S. J. Heideman, as New York and New England regional sales manager, and H. C. Aikman, B. B. Bowling and James P. Sparks, as factory warehouse branch managers in Toledo, Ohio, Detroit and Cleveland, Ohio, respectively, The Lee Tire and Rubber Co. of New York, Inc., Conshohocken, Pa.

...Robert Dando and Landon C. Fuqua, as sales representatives assigned

to the Philadelphia and Chicago areas respectively, Standard Pressed Steel Co., Jenkintown, Pa.

...Fred Walker, as assistant Detroit zone manager, GMC Truck and Coach Division, General Motors Corp., Pontiac, Mich.

...Keith W. Nutt, as automotive service branch office manager, Seattle, Wash., Automotive Division, Wagner Electric Corp., St. Louis, Mo.

...J. W. Williams, Minneapolis, Minn., as North and South Dakota and Minnesota representative, Automotive Tools Division, J. H. Williams and Co., Buffalo, N. Y.

...E. M. Slonaker, as executive vice president of the Willard Storage Battery Co., of California.

...W. Wayne Albright, assistant manager, Lubricating and Sales Technical Service Department, Chicago, of Standard Oil company (Indiana), president National Lubricating Grease Institute.

...Frank A. Tiedge, as Philadelphia regional truck manager, Dodge Division, Chrysler Corp., Detroit.

...Raymond L. Page, C. F. Weeks and James M. Brown, as West coast, midwest and East coast regional sales managers, respectively, Truckstell Mfg. Co., Cleveland, Ohio.

...Raymond S. Jenkins, as New England district field manager, Associated Lines Division, The B. F. Goodrich Co., Akron, Ohio.

...Russell L. Davies, as Texas sales representative with headquarters in Dallas, Carry-All Division, Morrison Steel products, Inc., Buffalo, N. Y.

...Harold F. Pfarr, as New York City manager, Bruce J. Corrigan, as New York regional business manager, and Albert A. Glen, as New York region special representative, Dodge Division, Chrysler Corp., Detroit.

...Ralph G. Robinson, as assistant manager, replacement sales, American Brake-blok Division, American Brake Shoe Co., Detroit.

...Alan B. Castator, Baltimore, Md., as general sales manager, Baltimore and Keene, N. H., brush division factories, Pittsburgh Plate Glass Co., Pittsburgh, Pa.

...Thomas F. Plant, as southern region manager with headquarters in Memphis, Tenn., United Motors Service, division of General Motors Corp., Detroit.

...Ray W. Warren, Raleigh, N. C., as southeast special representative, Galion Allsteel Body Co., Galion, Ohio.

...Al Rowe, as assistant sales manager, and W. S. Nunn, as midwest regional sales manager, Lemco Products, Inc., Bedford, Ohio.

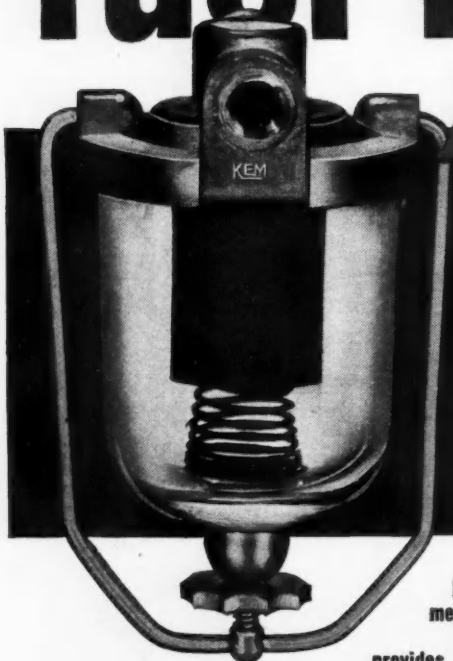
...H. R. Robbins, as Tennessee, Alabama, Mississippi and northwestern Florida representative, John Bean Division, Food Machinery and Chemical Corp., Lansing, Mich.

...Richard H. Koehler, as advertising and sales promotion department manager, Le Roi Co., Milwaukee, Wis.

...Ralph Bass, Minneapolis, Minn., as northwestern Iowa, western Michigan, northern and southwestern Minnesota, North and South Dakota and northwestern Wisconsin district manager, Jack C. Bootjer, Minneapolis, as northeastern Iowa, central and southern Minnesota and western Wisconsin district manager, C. S. Sharp, Hudson, Ohio, southern Indiana, Kentucky, southern Ohio and West Virginia district manager, and J. M. Tuohy, Chicago, central Illinois, central and southern Iowa and northwestern Missouri district manager, Maremont Automotive Products, Inc., Chicago.

REPLACE • REPAIR • REBUILD WITH **KEM**

KEM *Lifetime* MICRO-BRONZE fuel filter



outsells . . . out-performs

A fuel filter is no better than its filter element. Only the KEM Micro-Bronze Filter offers all these sales making features:

1. EXTRA PROTECTION
2. EXTRA FILTER AREA
3. LIFETIME BRONZE ELEMENT
4. FOOLPROOF FILTER BLOCK
5. EASILY CLEANED
6. EASILY INSTALLED

No other metal filter element provides as much filtering area as the KEM Micro-Bronze Unit. Atomic-like bronze pearls are fused together forming pores through which nothing but clean fuel can pass.

MANUFACTURERS OF
Fuel Pumps and Parts • Prefitted Ignition Parts

KEM MANUFACTURING COMPANY, INC.
FAIR LAWN, NEW JERSEY



The extra large area assures a constant flow of fuel and reduces chance of clogging

the extra BRAKING ECONOMY proven here...



High in the Rockies Crossing the Continental Divide.



Cost Cutting Bendix-Westinghouse Air Brakes Reduce Downtime and Repairs on Rugged Mountain Runs!

When a braking system proves itself for **safe, dependable performance and low operating costs** day after day over one of the toughest trucking routes in the country its got to be good! And that's exactly what Bendix-Westinghouse Air Brakes do on hundreds of trucks operating over Colorado's Berthoud Pass which cuts through the rugged Rocky Mountains at altitudes exceeding 11,000 feet. Here these **mighty brakes** are put to a grueling test—mile after mile of steep downgrades and sharp, tight curves that require almost constant braking application. Yet here, actual fleet records testify year after year that Bendix-Westinghouse Air Brakes pay off not only with **peak performance, positive control and utmost reliability**, but with actual hard cash savings on maintenance, parts replacement costs and reduced downtime. That's why, no matter what type trucks you operate and whether you operate them across town or cross country, you'll be way ahead in both performance and profits with the **brakes proven for economy**—Bendix-Westinghouse, the world's most tried and trusted air brakes!

Bendix-Westinghouse



THE WORLD'S MOST TRIED AND TRUSTED

AIR BRAKES

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY • ELYRIA, OHIO • BERKELEY, CALIF.

...means
**MORE
PROFITS**
on any
hauling job

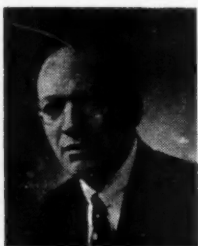


CCJ News Reports

Continued from Page 31

Peo Heads Niagara

Niagara Motor Freight Corp., Syracuse, N. Y., has been formed by Ray D. Peo, Cleveland, Ohio, as president, and V. S. Campbell, Columbus, Ohio, as vice president, to take over the franchises and to operate the business of Niagara Motor Express, Inc. Peo, a native of New York state, has been with The Autocar Co. in Cleveland in various capacities, including vice president. Campbell has been vice president of Mohawk Motors, Inc., a large mid-west common carrier. J. C. Durkin, Syracuse, N. Y., joins the new company as general manager. Orders have been placed for road and local power units as well as for 20 additional trailers, with plans for expanded facilities at Buffalo, N. Y., now under way.



Ton Mile Tax Upheld

Probably not fully aware of the facts, Oregon citizens voted almost two to one

1952 Domestic Truck Factory Sales by G.V.W.*

	5,000 lb. and less	5,001- 10,000	10,001- 14,000	14,001- 16,000	16,001- 19,500	19,501- 26,000	Over 26,000	Total
January	30,736	15,649	4,873	16,686	4,909	8,323	3,971	85,127
February	30,347	15,506	5,055	17,416	3,856	8,239	4,080	84,449
March	34,145	16,896	5,037	18,104	3,643	9,288	4,712	92,002
April	38,783	19,614	4,743	17,350	3,398	9,262	4,483	93,629
May	35,467	20,066	4,555	14,891	3,029	9,266	3,238	90,511
June	38,782	20,761	4,628	15,632	2,999	8,196	3,430	94,586
July	13,717	7,582	1,537	4,820	1,075	4,468	3,032	36,556
August	20,100	8,329	1,626	5,877	944	5,812	2,516	45,296
September	47,102	19,944	3,354	14,350	2,268	9,226	3,130	99,370
Nine Months—1952	289,149	144,287	35,406	125,114	26,271	72,104	32,682	725,025
Nine Months—1951	281,520	194,435	70,975	156,440	42,357	82,587	29,004	877,308

* Automobile Manufacturers Association.

to continue in effect that state's drastic ton mile tax on commercial vehicles and rejected a plan to base truck taxes wholly on registration fees and fuel taxes.

Decontrol Denied

The Office of Price Stabilization denied petition to suspend price control over contract carrier rates and charges. ATA's Contract Carrier Conference immediately filed for reconsideration.

Highway Aid, Diversion

Federal aid highway grants totalling \$575 million beginning with the July, 1953, fiscal year have been apportioned. Top three rates are New York with \$35 million, Texas with \$34 million and California with \$30 million. Included for the first time in the total were \$25 million for the National Sys-

tem of Interstate Highways. Other amounts allocated include \$247 million for primary highways, \$165 million for the secondary system and \$138 million for urban highways.

At the same time, the National Highway Users Conference announced that 26 states and the District of Columbia diverted \$266,771,000 of highway use tax revenues to non-highway purposes in 1951. The report, based on Bureau of Public Roads data, put New York at the top of the list in total amount diverted with a total of over \$77 million.

1953 Studebakers

Studebaker trucks sold on or after Nov. 15 have been designated as 1953 models for licensing purposes. The line continues substantially as before with no significant change in mechanical features or styling.

(TURN TO PAGE 172, PLEASE)

"HEARNE BROTHERS manufacture and sell more commercial maps than any other firm in the world."

all of their American competitors combined—There must be a reason"—How to use the mechanical index: Find the name in the index, then turn the MECHANICAL INDEX until the street or municipal name will be found in the index.

Send for **FREE ILLUSTRATED CATALOG**, containing seven large scale maps showing in color the area covered by our 400 large scale street maps. Absolutely no obligation, no salesman will call.

MEANDERING DELIVERIES

Route your trucks the **SHORTEST WAY** every trip. The time and gas used by your drivers looking for unknown streets, driving all around Robin Hood's barn to make deliveries, will buy a hundred maps like Hearne's Street Map of your city and county area.

Printed in six colors; street names are in big, black type, and instantly spotted with Hearne's patented, automatic Street Finder. (See border) And every map is mechanically indexed.

Over 100,000 truck owners use Hearne maps every day to give customers better service and cut truck mileage. Many users claim they save the cost of the map in a single day's use.

HEARNE BROTHERS

America's Largest Manufacturers of Commercial and School Maps.

25th Floor National Bank Bldg., Detroit 26, Mich.

Over	Total
26,000	85,127
3,971	84,488
4,080	92,027
4,712	97,581
4,483	90,472
3,238	94,500
3,530	38,231
3,032	45,294
2,516	99,370
3,130	
32,682	725,022
29,004	957,328

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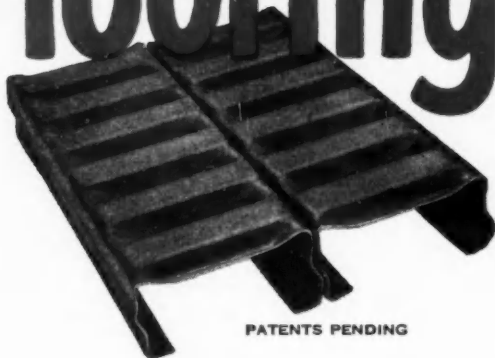
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ADDS

Stran-Steel® Flooring



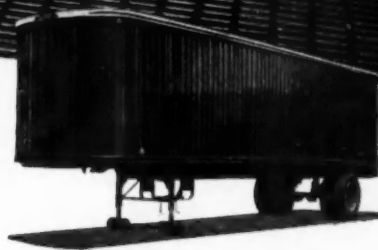
PATENTS PENDING

**LIGHT—for Greater Profits
...STRONG—for Longer Life!**

Trailmobile, well known for careful selection of the best materials for its vans and trailers, now brings fleet operators the plus value and serviceability of lightweight Stran-Steel Flooring. Standard equipment on one popular steel van, Stran-Steel Flooring is offered as optional equipment on other Trailmobile vans and trailers.



ORIGINAL EQUIP-
MENT on Trail-
mobile's TC Van,
Stran-Steel Flooring is
also available with
other models.



In taking this important step forward, Trailmobile has added highly desirable extra value to its products. Here are some of the benefits of Stran-Steel Flooring:

- Greater strength-to-weight ratio permits bigger payloads.
- So tough and durable it will last as long as the chassis.
- Exclusive *nailability* feature gives extra safety for blocked loads.
- Permits complete palletization, speeds loading and unloading.
- Adds structural strength to chassis.
- Built with N-A-X HIGH-TENSILE Steel—the alloy steel that has a greater strength-to-weight ratio.

You'll want the whole story of how Stran-Steel Flooring cuts costs, improves efficiency, and prolongs the life of hauling equipment—so fill out and mail the coupon below.

SEND FOR NEW BOOKLET

GREAT LAKES STEEL CORPORATION

Stran-Steel Division • Ecorse,

Detroit 29, Michigan



NATIONAL STEEL CORPORATION



Stran-Steel Division, Great Lakes Steel Corporation
Ecorse, Detroit 29, Michigan

Please rush the new illustrated booklet on the construction and advantages of Stran-Steel Flooring for trucks and trailers.

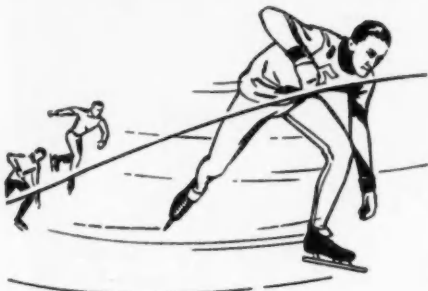
INDIVIDUAL _____

COMPANY NAME _____

ADDRESS _____

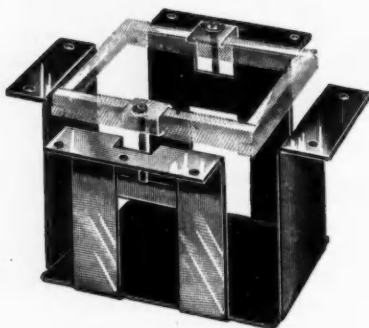
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SERVICE WINNERS



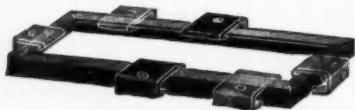
for WINTER SERVICE

When you get the car ready for winter driving you will find many Champ-Items Automotive Parts to help you do a Safer—Better job. The Champ-Items for Battery Servicing, are featured on pages 34 and 35 of our No. 500-R Catalog. If you haven't a copy, write us on your bill or letterhead today.



for your BATTERY SERVICE

- No. 431 Battery Carrier for 1937-38-39 Chevrolet.
- No. 445 Battery Hold Downs (Universal) with adjustable clamps for most popular cars.
- No. 465 Battery Support Tray for 1940-48 Chevrolet.
- No. 522 Universal Battery Hold Down bolt for all Cars and Trucks.
- No. 565 Four Flange Battery Carrier Box for Chrysler-De Soto cars, and Plymouth and Dodge Cars and Trucks.
- No. 656 Battery Post Shim.
- No. 963 Adjustable Battery Carrier.



ORDER FROM
YOUR JOBBER



CHAMP-ITEMS, INC.
6191 Maple Ave., St. Louis 14, Mo.

CCJ News Reports

Continued from Page 148

Aluminum Supply Critical

Despite a long range program announced by the Defense Production Administration to provide capacity for an additional 684 million pounds of aluminum sheet by 1955, immediate prospects for an adequate supply are gloomy. Because of the power shortage in the Pacific northwest and the Tennessee Valley Authority areas, the industry expects to have a 150 million pound order backlog by the end of this month, with expected delays in delivery dates of from four to six weeks. Some help is in sight in an agreement reached with the British Government and the Aluminum Co. of Canada to supply the U. S. with 77 million pounds during this month and the first two quarters of 1953. This supply had been scheduled for delivery under contract to Great Britain.

1952 Truck Trailer Shipments*

Vans	September	Nine Months
Insulated and refrigerated	294	2,477
Steel	42	683
Aluminum	252	1,794
Furniture	166	1,069
Steel	166	1,069
Aluminum	166	1,069
All other closed-top	1,652	11,696
Steel	714	6,465
Aluminum	938	5,231
Open-top	240	1,710
Steel	131	825
Aluminum	109	885
Total—Vans	2,352	16,952
Tanks		
Petroleum	370	3,247
Food	22	213
L.P.G.	6	97
All other	11	286
Total—Tanks	409	3,843
Pole, pipe and logging		
Single axle	94	702
Tandem axle	90	1,272
Total	184	1,974
Platforms		
Racks, livestock and stake	194	3,388
Grain bodies	111	877
Flats (all types)	676	5,655
Total—Platforms	981	9,920
Low-bed heavy haulers	447	4,376
Dump trailers	84	769
All other trailers	134	1,409
Total—Complete trailers	4,591	39,245
Converter dollies	83	733
Trailer chassis	242	2,627
Total—Trailers and Chassis	4,916	42,605

* Industry Division, Bureau of the Census.

Accident Investigations

ICC will issue reports on their investigations of motor carrier accidents, with authority and responsibility for the reports being delegated to Commissioner Arapia.

(TURN TO PAGE 174, PLEASE)



Budd Wheel Distributors provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Wheel, Rim & Parts Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.
CHARLOTTE—Carolina Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Rim & Wheel Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
LUBBOCK—Southwest Wheel, Inc.
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Peoria Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Co., Inc.
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robbles', Inc.
PROVIDENCE—New England Wheel & Rim Company
RALEIGH—Carolina Rim & Wheel Co.
RICHMOND—Dixie Wheel Co., Inc.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robbles', Inc.
SOUTH BEND—Wire & Disc Wheel & Sales Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Brake Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robbles', Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Borbein, Young & Co.
WINSTON-SALEM—United-Automotive Service

EXPORT

CLEVELAND—C. O. Brandes, Inc.

CANADA

CALGARY—Mutual Supplies, Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—Auto Wheels & Supplies, Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.

*Specify and Standardize
on Budd Wheels*



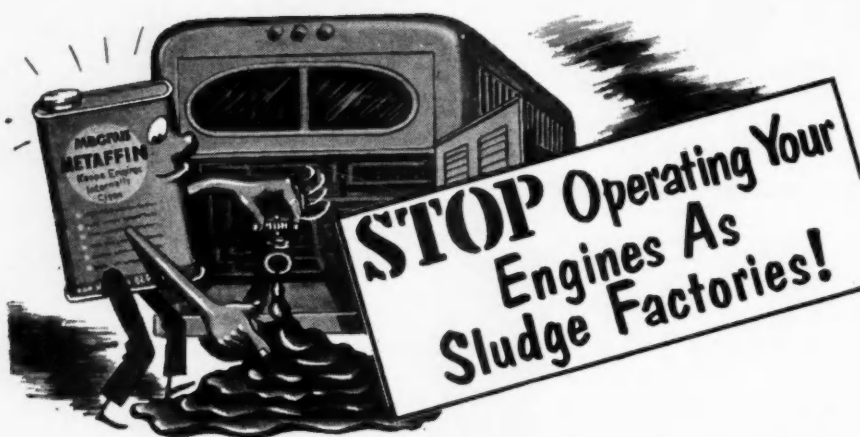
Quarry Query?

"I asked myself," says Murhl R. Smith of Montpelier Stone Company out in Indiana, "why I wasn't getting the tire life I ought to expect on my trucks, even though they haul the heavy loads they do."

"So I talked to Mel Herber of Wheel and Rim Sales Company in Fort Wayne. On his recommendation, we replaced the cast iron wheels with 10-hole Budd wheels with wide base rims and a tapered bead seat, and 1600/24 tires."

"Here's a picture of a tire that's been on the move for the past 2 years—and from its looks, it is good for at least two more years. Before we changed over, we were only getting about 6 months' service out of our tires."

Murhl R. Smith



As long as they don't get rid of the water that forms with combustion, truck and bus engines are bound to be sludge factories. When water condenses and settles in the lube oil, "varnish" and sludge are inevitable by-products...and so are the operating and maintenance expenses they cause.

Get Rid of the Water and You Get Rid of the Sludge. If you use the proper amount of Magnus Metaffin in your lube oil, it does the essential job of keeping condensed water thoroughly dispersed throughout the body of the oil...in such finely divided condition that it is all evaporated through the breathers. Metaffin is particularly effective on trucks and buses operating on "stop-and-go" schedules which tend to keep crankcase temperatures below ordinary effective levels. You fit your treatment to driving conditions, and say good-bye to a lot of the trouble and cost resulting from poor lubrication directly traceable to sludge.

Put an Engine on a Metaffin Schedule. Try Metaffin on just one engine...where you can watch results. You'll see the difference—not only in crankcase condition, but in reduced maintenance costs. We'll supply the Metaffin if you'll supply the engine!

MAGNUS CHEMICAL COMPANY, 38 South Avenue, Garwood, N. J. In Canada—Magnus Chemicals, Ltd., Montreal. Service representatives in principal cities.



MAGNUS
CLEANERS • EQUIPMENT • METHODS



Now! Get more original miles... more recap miles at no extra cost

DSC puts extra strength and resiliency under the tread, at the shoulders, at the sides. No weak points to bruise, break, blow out! No localized flexing to cause high friction heat! Coopers run cooler, run longer—deliver more original, more recap miles on the toughest hauls. See your Cooper dealer and cut truck tire costs.



Cooper
TIRE & RUBBER COMPANY

Findlay, Ohio

TIRES • TUBES • BATTERIES • ACCESSORIES • REPAIR MATERIALS

**B
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CCJ News Reports

Continued from Page 172

Safety Awards

Outstanding driver safety records have been recognized by the following companies:

Express Freight Lines, Inc., Milwaukee, Wis.; awards and bonuses to 75 drivers at their South Bend, Ind., terminal.

Darling Freight, Inc., Grand Rapids, Mich.; awards to 50 drivers at the company's annual safety banquet at Lansing, Mich.

E and L Transport Co., Dearborn, Mich.; awards presented to 121 drivers, one with a 12-yr record.

Pacific Motor Trucking Co., Southern Pacific Railroad's trucking affiliate, San Francisco, Cal.; National Safety Council "Safe Driver Awards" to 388 employees with individual records from one to 12 yrs for a total of 1220 yrs of safe driving.

Wilson Truck Co., Nashville, Tenn.; awards and wrist watches to nine drivers with records from 10 to 15 yrs of accident free driving.

Lee Way Motor Freight, Inc., Oklahoma City, Okla.; awards to 81 over-the-road drivers of their Oklahoma City division.

Heater Ban Postponed

The ICC has postponed from Dec. 31, 1952, to Sept. 1, 1953, the effective date of that part of the motor carrier safety regulations which prohibits solid fuel heaters for cargo space-heating in trucks and trailers.

ICC Rescinds Control

By order in Docket 3666, Ex Parte MC-3 and MC-13, the ICC rescinded jurisdiction over purely intrastate transportation of explosives and other dangerous articles. The ICC assumed this jurisdiction in 1943.

Southwestern Governors

Southwestern Governors' Conference, meeting in Denver, recommended adoption of the AASHO size and weight code with a "grandfather" clause for equipment now in use, overload fines high enough to remove the profit from overloads and mandatory removal of excess weight, and consideration of formation of a reciprocity commission and a model reciprocity law.

New TBEA Officers

Truck Body and Equipment Association, Inc., officers for the coming year are: G. E. Herr, Marion Metal Prod. (TURN TO PAGE 176, PLEASE)

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Balanced Performance Means Lower Operating Costs

Delco-Remy ELECTRICAL EQUIPMENT

Join the host of car, truck and bus operators who enjoy the low-cost performance advantages of Delco-Remy electrical equipment — the original equipment choice of leading automotive manufacturers.

In replacement parts—identical with your vehicles' original equipment parts—Delco-Remy electrical equipment provides *balanced performance*. Every unit is carefully matched and balanced with every other unit so that the electrical system can deliver peak performance under all conditions.

This is the result of Delco-Remy's long experience, of Delco-Remy's outstanding ability and know-how in the engineering and manufacture of automotive electrical equipment.

YOUR DELCO-REMY WHOLESALE CAN HELP YOU

Your Delco-Remy wholesaler and his staff are men of importance, backed by long and valuable experience in the automotive electrical business. He has many fine services to offer you. Consult him and take advantage of his long and efficient vehicle operation and maintenance experience.

DELCO-REMY

A GENERAL MOTORS PRODUCT



A UNITED MOTORS LINE

DISTRIBUTED BY WHOLESALEERS EVERYWHERE

YOU CAN RELY ON ALL UNITED MOTORS LINES FOR LOW OPERATING COSTS

DELCO Batteries
AC GAUGES, Speedometers and
Rebuilt Fuel Pumps
SAGINAW Jacks
MORAINE Engine Bearings
DELCO Radio Parts
ROCHESTER Cigar Lighters
HYATT Roller Bearings
INLITE Brake Lining
HARRISON Heater Motors
GUIDE Lamps
DELCO Clock Parts
NEW DEPARTURE Ball Bearings
DELCO Shock Absorbers
MORAINE Gasoline Filters
HARRISON Thermostats
DELCO-REMY Starting, Lighting &
Ignition
KLAXON Horns
HARRISON Radiators
ROCHESTER Carburetors
DELCO Hydraulic Brakes

YOU CAN RELY ON

**Leece-
Neville**

THE LEECE-NEVILLE CO., CLEVELAND 14, OHIO

HEAVY-DUTY AUTOMOTIVE
ELECTRIC EQUIPMENT
FOR OVER 43 YEARS

For better traction

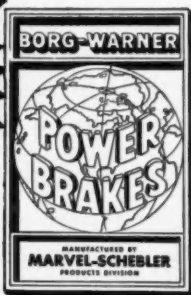
Use **CLAW**

Double-Duty
TRUCK CHAINS

Columbus McKinnon Chain
Corporation
TONAWANDA, N. Y.

The
right
answer for
controlled
braking...

Distributed by
BORG-WARNER
SERVICE PARTS CO.
Chicago, Illinois



WATER PUMPS

For all cars, trucks, buses,
and industrial engines

REBUILT

by factory methods

GUARANTEED SERVICE

equal to New

Send in your old units

PARTS SPECIALTIES CO.

5984 Lincoln Ave., Detroit 8, Michigan

GUMOUT

"on-the-engine"
carburetor cleaning
makes trucks run better

Pennsylvania Refining Company
2686 Lisbon Road
Cleveland 4, Ohio

CCJ News Reports

Continued from Page 174

ucts Co., Marion, Ohio, president;
Henry S. Maday, Maday Body and
Equipment Corp., Buffalo, N. Y., and
D. V. Walker, Eberhard Mfg. Co.,
Cleveland, Ohio, vice president; and
Fearson S. Meeks, S. J. Meeks Sons,
Washington, D. C., secretary-treasurer.

Trailer Specs

ATA's National Freight Claim Council's Equipment Committee reported on trailer design to reduce freight claims. Suggestions included: (1) long flexible springs to give freight the easiest ride possible through better positioned or adjustable running gear, (2) proper design to control water flow, (3) light, portable dunnage, (4) nailable floors, (5) picketed, creviced or intersticed floor, and (6) positive door latches.

Truck Body Service

Truck body users and builders in the northeastern states should be interested in a new service provided by Lewisohn Sales Co., Inc., North Bergen, N. J. Lewisohn, and a subsidiary, The Lewgust Corp., are expanding to be able to supply both a complete line of parts, such as rub rails, sills, slats, hardware, mouldings, etc., as well as a selection of prefabricated body parts, including roof sections, body panels, doors, tailgates and floor substructures.

(TURN TO PAGE 178, PLEASE)

HOOBLER UNDERCARRIAGE

- Greater Payload!
- Less Operating Cost!

For flat tops, high sides, vans
and tankers, 28 feet and over.

Write for Bulletin HU-102

THE UNION METAL MANUFACTURING CO.

Canton 5, Ohio



SNAP-ON TOOLS CORPORATION
8026-L 28th AVE. KENOSHA, WIS.

FIRST IN { APPEARANCE
ECONOMY
DURABILITY

Permalux
FINER DECALCOMANIA
MADE WITH DuPont "DULUX"

THE PERMALUX CO.

500 Rathbone Ave.
Aurora, Ill.

WRITE TODAY
FOR DETAILS

IN EVERY INDUSTRY

SKF Puts The Right Bearing In The Right Place



"finest of the fine" —
FOR HEAVY DUTY
WOLF'S HEAD
MOTOR OIL AND LUBES
100% PURE PENNSYLVANIA
Member,
Penna. Grade Crude Oil
Association

MONKEY LINK Self-Closing Repair Link

NO TOOLS
REQUIRED



Trade Mark Reg. U. S. Pat. Off.

MONKEY LINKS

Fit all types
of Tire Chains.
Made in 5 sizes.

Order them
today.

**FLOWER CITY
SPECIALTY CO.**
Rochester, N. Y.

FAST-CHARGE

both 6 and 12 volt batteries with

MARQUETTE

6-12

BATTERY CHARGER

Marquette Manufacturing Co., Inc.
307 E. Hennepin Ave., Minneapolis 14, Minn.

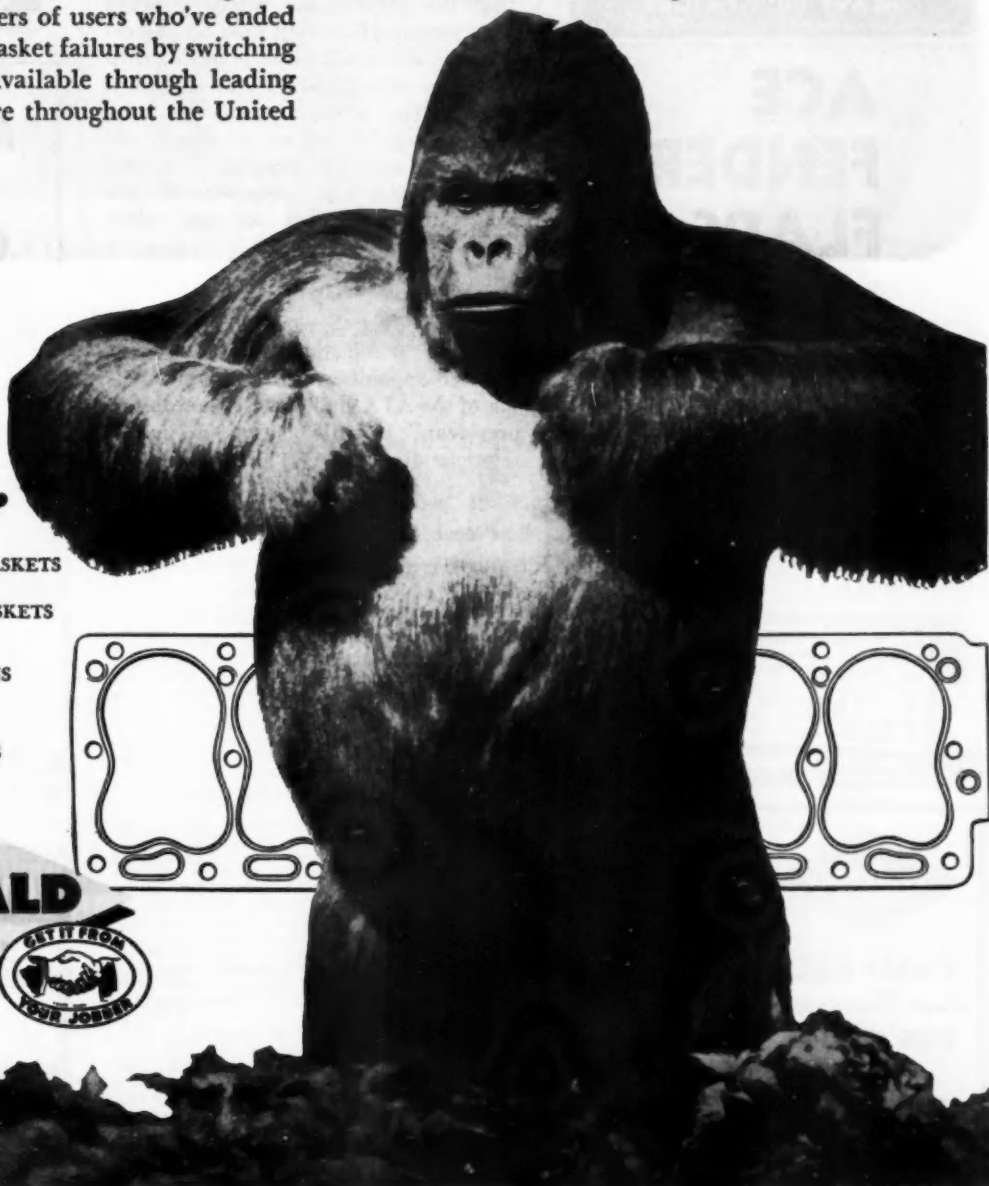
NONE TOUGHER... FITZGERALD GASKETS

ONE of the toughest customers in the animal kingdom, the gorilla was built to survive in the rugged Congo forest. FITZGERALD GASKETS are built to survive in the rugged heat and pressures of a modern high compression engine where a gasket has to be extra tough to last.

FITZGERALD GASKETS are extra tough . . . witness the numbers of users who've ended a costly string of gasket failures by switching to FITZGERALDS. Available through leading jobbers everywhere throughout the United

States and Canada, they're exported abroad exclusively by the world's leading manufacturer of automobiles.

THE
FITZGERALD MANUFACTURING CO.
TORRINGTON, CONNECTICUT
Canadian FITZGERALD Ltd. — Toronto, Canada
Branch and Warehouse — Los Angeles, California



Also...

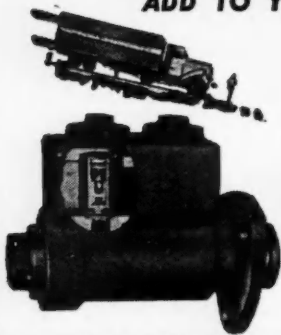
GREASE RETAINERS • CORK GASKETS

FITZ-RITE TREATED FIBER GASKETS
FOR OIL, GASOLINE
AND WATER CONNECTIONS

COMPLETE SETS
FOR MOTOR REBUILDERS



ADD TO YOUR TRUCK SAFETY—CUT YOUR POWER BRAKE COSTS IN HALF!



MICO POWER BRAKE CYLINDER

STOP! The powerful 2-stage MICO Power Brake Cylinder progresses in mid-action from a low-pressure to a high-pressure cylinder. Insures smoother, surer stops. Replaces the hydraulic master cylinder. Simple to install.

MICO BRAKE LOCK

HOLD! Flip the switch—step on the brake pedal and you have more dependable holding power than ever before attained with any emergency brake. The MICO Brake Lock is simple to install in any hydraulic braking system.



WRITE FOR CATALOGS
AND NAME OF YOUR NEAREST MICO DISTRIBUTOR
MINNESOTA AUTOMOTIVE, INC. MANKATO, MINNESOTA

**OVER 70% OF ALL
MAKES OF TRUCKS
AND BUSES ARE
ZOLLNER EQUIPPED**

ZOLLNER
HEAVY DUTY PISTONS

ZOLLNER MACHINE WORKS FOST WATNE IND

ACE FENDER FLAPS LAST

ACE RUBBER PRODUCTS, INC.
100 BEECH ST. AKRON 8, OHIO

KINNEAR Rolling Doors



For Trucks or Buildings. Kinnear Rolling Doors open straight up... coil out of the way overhead... save floor and wall space... open and close freely in tightest quarters. All-metal curtain gives rugged protection. Motor or manual control. Any size. Write

The KINNEAR Manufacturing Co.
2100-20 Fields Ave. Columbus 16, Ohio



CAMPBELL Lug-Reinforced TIRE CHAINS

Extra Metal—Extra Mileage

CAMPBELL CHAIN Company

Factories: York, Pa. and West Burlington, Iowa
Main Office—York, Pennsylvania

CCJ News Reports

Continued from Page 176

Automatic Shift

Fifty of the Army's new 2½-ton Hydramatic trucks (M-135) have been undergoing actual combat tests in Korea under the jurisdiction of the 42nd Transportation Truck Company. Initial reports are good with indications that the Hydramatic drive, a heavy duty version of the unit used on passenger cars and small buses, is paying dividends in driver morale and efficiency. Particularly noteworthy is the automatic down-shifting which greatly reduces the need for braking. Nonetheless, the vehicle is equipped with air-over-hydraulic brakes for use when needed.

Belson Moves Up

Walter F. Carey, president, American Trucking Associations, Inc., has announced appointment of Walter W. Belson of the ATA staff as "assistant to the president." He will continue as public relations director.

END

Please Resume Reading Page 37

CLASSIFIED ADVERTISEMENTS

INDEPENDENT SALESMEN to Fleet Owners, from Massachusetts to Virginia, west to Ohio. We have 3 exclusive, outstanding products, 2 of them well established and widely used. Consistent re-orders. Substantial commission. Exclusive territories. No objection to non-conflicting present line. Give full information on territory and lines. Ste Dee Co., Lynbrook, N. Y.

Man, retired or active, experienced in over-the-road truck costs. One who knows the tremendous losses incurred by vibrating and rough-riding trucks. To show simple invention that ends vibration on any truck in a few minutes, done by inexperienced men, at a cost of less than \$5.00 per year, per unit. Actual demonstration with any rough-riding truck instantly proves it eliminates rear end, wheel bearing, drive shaft, transmission, and front-end trouble at once! Saves thousands of dollars. Improves driver personnel relations. Increases over-the-road speeds. If you are familiar with the above problems write G. H. Pearson, B & B Mfg. Co., Sioux City, Iowa, for the amazing story of the simple, positive cure of these rough-riding trucks and the attendant PROFITS for the man who shows it.

**FOR YEAR 'ROUND
LOCK MAINTENANCE—**

LOCK-EASE
Graphited LOCK FLUID

BEST PROTECTION AGAINST
STICKING—RUST—FREEZING

AMERICAN GREASE STICK CO. MUSKOGEE, OKLA.
ORDER FROM YOUR JOBBER

HEAVY DUTY MOTOR TRUCKS

GASOLINE ELECTRIC GENERATING SETS

DUPLEX

TRUCK COMPANY
LANSING, MICHIGAN

FRINK SNO-PLOWS

Both "V" TYPE and
ONE WAY BLADE TYPE

hand or power hydraulic control
FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

FRINK SNO-PLOWS, INC., CLAYTON, 1000 Isl., N.Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

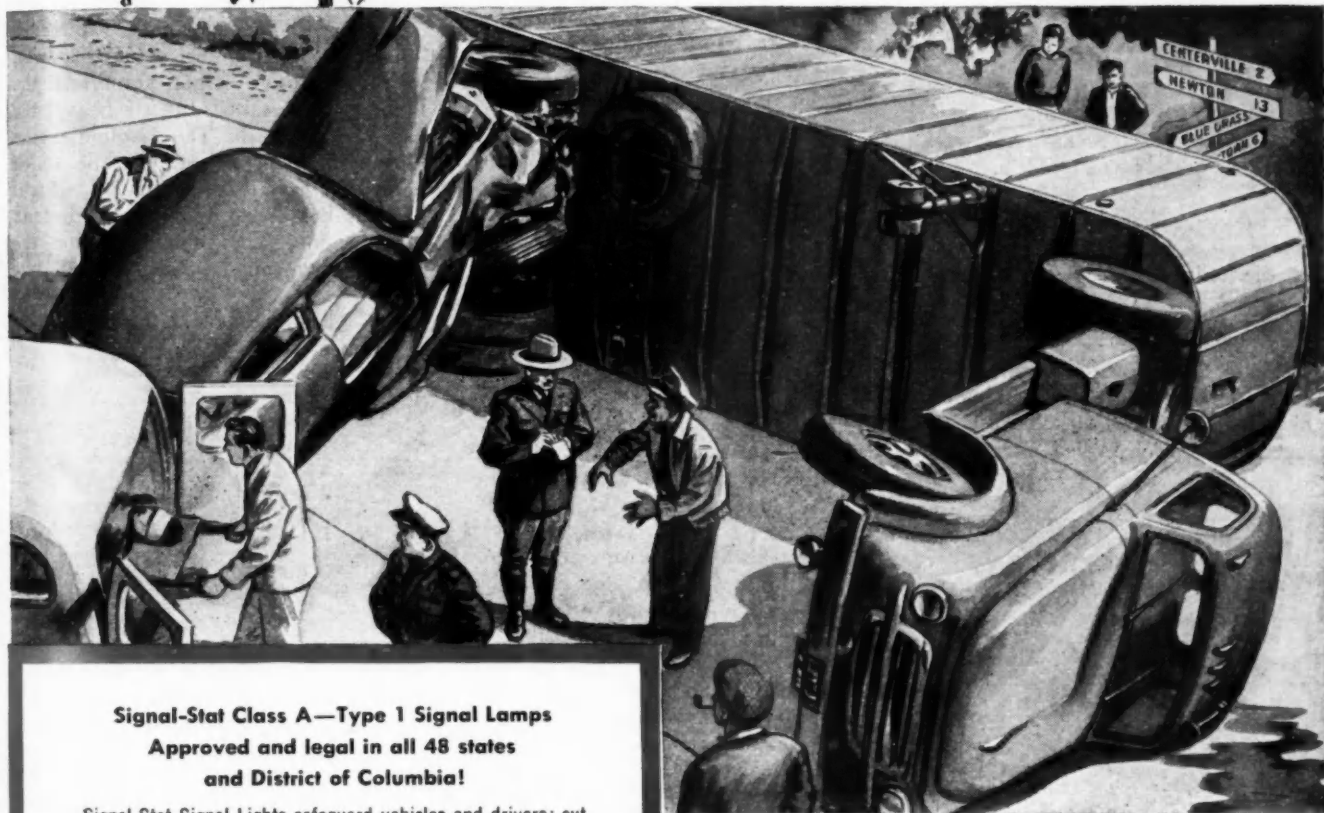
WOHLERT PARTS are better

- THEY'RE MADE IN WOHLERT FACTORIES BY PRECISION TRAINED WORKMEN
- THERE ARE HUNDREDS OF SUCCESSFUL PARTS IN THE WOHLERT LINE
- EVERY WOHLERT PART IS ENGINEERED AND PLAINLY IDENTIFIED

Wohlert Corporation
Lansing 5, Michigan



**"It could have been me
driving your truck!"**



**Signal-Stat Class A—Type 1 Signal Lamps
Approved and legal in all 48 states
and District of Columbia!**

Signal-Stat Signal Lights safeguard vehicles and drivers; cut accident losses; promote safe driving habits. They exceed SAE requirements. Open illuminated lens area exceeds 14 square inches. Parabolic aluminum reflectors and scientifically fluted Lucite molded lenses combine to create a beamed pattern of light which minimizes glare and assures maximum visibility night or day under any conditions.

Signal-Stat Signals are signaleered. They combine the best in material, engineering, design, and construction—are shock-proof, rustproof, tested, and approved. Illustrated catalog available on request.



"I saw it happen as I was walking out of the diner! Boss, I'm scared. This rig comes along and I see the driver stick out his hand for a turn. But there's a car following the truck, and I guess the guy couldn't see that hand signal because he keeps coming. The truck driver tries to cut back out of the way and his rig jackknifes. The car piles right into him!

"Boss, that could have been me. I checked my rig and even when I stick my hand out nobody behind me can see it. I'm not climbing up on that horse again unless it has directional signals. It's your truck, but it's my neck I'm risking."

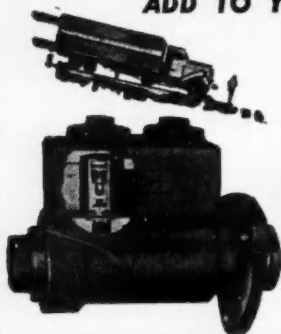
Mr. Fleet Owner! Signal-Stat Directional Signals are vital to safety. They protect your drivers, your vehicles, and your profits. Your P.L. and P.D. insurance rate is based on your fleet accident record. Every accident your drivers prevent saves you money on insurance.

Signal-Stat
CORPORATION

SIGNAL STAT BUILDING
523-539 Kent Ave., Brooklyn 11, N.Y.

Safety wherever you turn

ADD TO YOUR TRUCK SAFETY—CUT YOUR POWER BRAKE COSTS IN HALF!



Mico POWER BRAKE CYLINDER

STOP! The powerful 2-stage MICO Power Brake Cylinder progresses in mid-action from a low-pressure to a high-pressure cylinder. Insures smoother, surer stops. Replaces the hydraulic master cylinder. Simple to install.

Mico BRAKE LOCK

HOLD! Flip the switch—step on the brake pedal and you have more dependable holding power than ever before attained with any emergency brake. The MICO Brake Lock is simple to install in any hydraulic braking system.



WRITE FOR CATALOGS
AND NAME OF YOUR NEAREST MICO DISTRIBUTOR
MINNESOTA AUTOMOTIVE, INC. MANKATO, MINNESOTA

OVER 70% OF ALL
MAKES OF TRUCKS
AND BUSES ARE
Zollner EQUIPPED
ZOLLNER
HEAVY DUTY PISTONS
ZOLLNER MACHINE WORKS FOST WATNE IND

ACE FENDER FLAPS LAST

ACE RUBBER PRODUCTS, INC.
100 BEECH ST. AKRON 8, OHIO

KINNEAR Rolling Doors



For Trucks or Buildings. Kinnear Rolling Doors open straight up...coil out of the way overhead...save floor and wall space...open and close freely in tightest quarters. All-metal curtain gives rugged protection. Motor or manual control. Any size. Write

The KINNEAR Manufacturing Co.
2100-20 Fields Ave. Columbus 16, Ohio

**CAMPBELL
CHAIN**

CAMPBELL
Lug-Reinforced
TIRE CHAINS

Extra Metal—Extra Mileage
CAMPBELL CHAIN Company
Factories: York, Pa. and West Burlington, Iowa
Main Office—York, Pennsylvania

CCJ News Reports

Continued from Page 176

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INDEPENDENT SALESMEN to Fleet Owners, from Massachusetts to Virginia, west to Ohio. We have 3 exclusive, outstanding products, 2 of them well established and widely used. Consistent re-orders. Substantial commission. Exclusive territories. No objection to non-conflicting present line. Give full information on territory and lines. Ste Dee Co., Lynbrook, N. Y.

Man, retired or active, experienced in over-the-road truck costs. One who knows the tremendous losses incurred by vibrating and rough-riding trucks. To show simple invention that ends vibration on any truck in a few minutes, done by inexperienced men, at a cost of less than \$5.00 per year, per unit. Actual demonstration with any rough-riding truck instantly proves it eliminates rear end, wheel bearing, drive shaft, transmission, and front-end trouble at once! Saves thousands of dollars. Improves driver personnel relations. Increases over-the-road speeds. If you are familiar with the above problems write G. H. Pearson, B & B Mfg. Co., Sioux City, Iowa, for the amazing story of the simple, positive cure of these rough-riding trucks and the attendant PROFITS for the man who shows it.

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LOCK MAINTENANCE

LOCK-EASE
Graphited LOCK FLUID

BEST PROTECTION AGAINST
STICKING—RUST—FREEZING

AMERICAN GREASE STICK CO. MUSKOGEE, OKLA.
ORDER FROM YOUR JOBBER

HEAVY DUTY MOTOR TRUCKS

GASOLINE ELECTRIC GENERATING SETS

DUPLIX
TRUCK COMPANY
LANSING, MICHIGAN

FRINK
SNO-PLOWS

Both "V" TYPE and
ONE WAY BLADE TYPE

hand or power hydraulic control
FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

FRINK SNO-PLOWS, INC., CLAYTON, 1000 1st, N.Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. LTD., TORONTO, ONT.

WOHLERT PARTS *are better*

THEY'RE MADE IN
WOHLERT FACTORIES
BY PRECISION TRAINED
WORKMEN

THERE ARE HUNDREDS
OF SUCCESSFUL PARTS
IN THE WOHLERT LINE

EVERY WOHLERT PART
IS ENGINEERED AND
PLAINLY IDENTIFIED

Wohlert Corporation
Lansing 5, Michigan



**"It could have been me
driving your truck!"**



**Signal-Stat Class A—Type 1 Signal Lamps
Approved and legal in all 48 states
and District of Columbia!**

Signal-Stat Signal Lights safeguard vehicles and drivers; cut accident losses; promote safe driving habits. They exceed SAE requirements. Open illuminated lens area exceeds 14 square inches. Parabolic aluminum reflectors and scientifically fluted Lucite molded lenses combine to create a beamed pattern of light which minimizes glare and assures maximum visibility night or day under any conditions.

Signal-Stat Signals are signaleered. They combine the best in material, engineering, design, and construction—are shock-proof, rustproof, tested, and approved. Illustrated catalog available on request.



"I saw it happen as I was walking out of the diner! Boss, I'm scared. This rig comes along and I see the driver stick out his hand for a turn. But there's a car following the truck, and I guess the guy couldn't see that hand signal because he keeps coming. The truck driver tries to cut back out of the way and his rig jackknifes. The car piles right into him!

"Boss, that could have been me. I checked my rig and even when I stick my hand out nobody behind me can see it. I'm not climbing up on that horse again unless it has directional signals. It's your truck, but it's my neck I'm risking."

Mr. Fleet Owner! Signal-Stat Directional Signals are vital to safety. They protect your drivers, your vehicles, and your profits. Your P.L. and P.D. insurance rate is based on your fleet accident record. Every accident your drivers prevent saves you money on insurance.

Signal-Stat

CORPORATION

SIGNAL STAT BUILDING

523-539 Kent Ave., Brooklyn 11, N. Y.

Safety wherever you turn

New Product Descriptions

Continued from Page 75

P188. Concentricity Gage

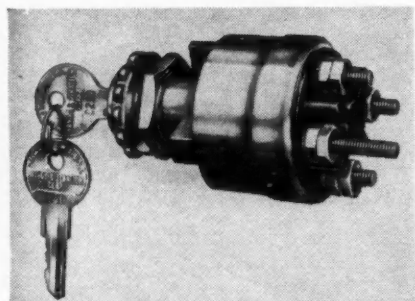


Concentricity of tires and wheels without removal from the vehicle is determined by a new, portable gage just introduced by Fred Gracia, Santa Maria, Cal.

Readings are taken after the gage has been placed sufficiently close to the tire or wheel so that the indicator needle reads zero.

P189. Starter Switch

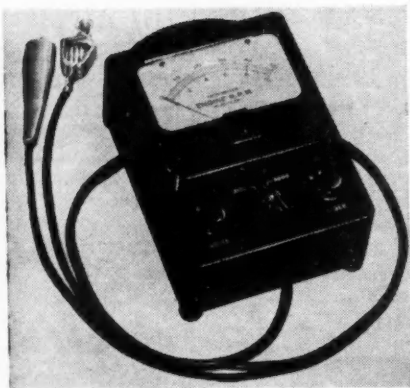
Vehicles with two-wire push button starting can use a new combination ignition and starter switch just announced by Joseph Pollak Corp., Bos-



ton, Mass. The new model, No. LS-58, has four positions; left—accessories only, center—off, right—ignition and accessories and extreme right—starting.

P190. Tachometer

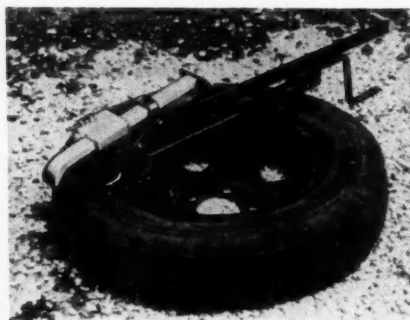
For testing valve action, automatic spark advance, setting governors, carburetor adjustment and engine tune-



up, a new ignition-actuated engine tachometer has just been introduced by Fox Valley Instrument Co., Ingleside, Ill. Requiring only two connections for use, it provides for either 6 or 12-volt operation.

P191. Rim Jack

Combining in one unit a set of rim hooks and cross bar, hand crank to tighten the hooks, and a ratchet-operated spade with extension lever giving a 40 to 1 pressure leverage, a new



rim jack is being marketed by Lako Corp., St. Paul, Minn. Hooks are placed over the edge of the rim and set by winding the crank. The spade is then raised to a vertical position and a few strokes of the operating lever forces the bead from the rim. For stubborn tires, the jack can be rotated 180 deg and the process repeated. It weighs 52 lb, folds into a space 40 by 10 by 12 in. and handles tires up to 24 in. rim diameter with an extension bar available that increases capacity to 40 in.

Late Product Flashes

Push and pull jack unit, by Hein-Werner Corp., Waukesha, Wis., includes a 10-ton jack and basic attachments for most body, fender and frame repair jobs in a wooden box.

Motor flush, produced by Gulf Oil Corp., Pittsburgh, Pa., is designed to provide the most effective internal engine cleaning job ever possible without a motor teardown.

Universal joints of heat-treated alloy steels have been added to the Perfection Gear Co., Harvey, Ill., line of replacement parts.

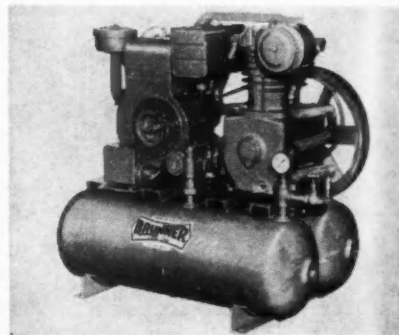
Body alignment tool No. 14, developed by Bee-Line Co., Davenport, Iowa, makes it possible to push, push and hold, pull, pull and hold, double push, double pull, spread and squeeze in any of the 360-deg angles in body straightening.

Exhaust tubes for carbon monoxide ventilating systems introduced by Car-Mon Products Co., Chicago, have a flexible "backbone" of tough steel wire coiled between two layers of neoprene rubber.

Carburetor cleaning kit available from Rust Master Chemical Co., Cambridge, Mass., utilizes a special cleaning fluid that dissolves foreign matter by being poured through the carburetor without it being removed from the engine.

P192. Air Compressors

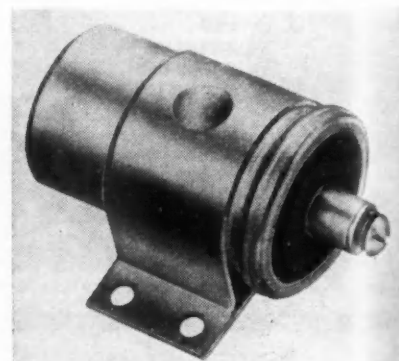
Two new, gasoline engine equipped, two-stage air compressor units are now being produced by Brunner Mfg. Co., Utica, N. Y. With sufficient capacity to handle impact wrenches, hydraulic air-operated jacks or lifts, air hammers, greasing equipment and tire inflation, the compressors were designed for road service use. Two 17½-gal ASME tanks make possible a lower center of gravity, with the lower height permitting the unit to be installed directly behind the service truck cab. The gasoline engine is mounted on adjustable rails which allow for easy belt adjustment and will operate for 2½ to 3 hr on a single tank of gasoline. The compressor and the engine are air cooled. Model No.



H3545G, Type "A" has a rope starter and a pressure switch for automatic shut-off when the tank pressure reaches the pre-determined setting. Designed for constant operation, Model No. H3545G, Type "U" is equipped with electric starting motor, starting solenoid and ignition switch.

P193. Condenser

A new, heavy-duty, oil-filled condenser has been announced by Kem Mfg. Co., Fair Lawn, N. J. This Model No. UC-100 condenser is oil-filled and hermetically sealed, providing protection against heat, moisture and fumes.



Insulation values are in the range above 4000 volts. Universal flat surface mountings for 6, 12 and 24-volt systems are provided.

END

Please Resume Reading Page 76

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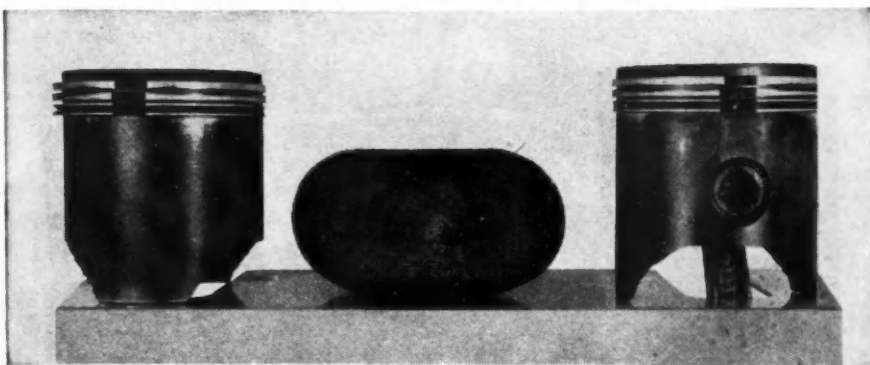
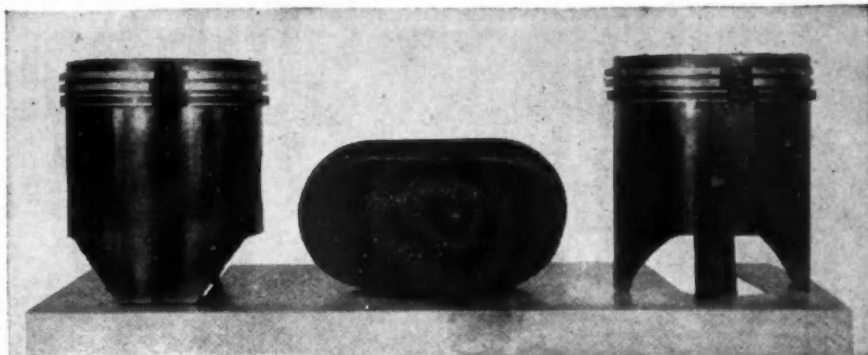
Page 76

ember, 1952

WHICH WOULD YOURS LOOK LIKE?



Do your oil screens and pistons look anything like this after 25,000 miles of service? These parts were actually taken from a Chevrolet taxi-cab engine after 24,144 miles on an ordinary heavy-duty oil.



Or, would they be like the ones pictured here, which were taken from the same type of engine after 26,397 miles on GULFLUBE MOTOR OIL X.H.D.?

GULFLUBE MOTOR OIL X.H.D. increases mileage between engine overhauls, reduces oil consumption

Is your operation plagued with too frequent overhauls and high maintenance costs caused by harmful engine deposits and mayonnaise-type sludge? The best answer to this problem is GULFLUBE MOTOR OIL X.H.D.

In engine-wearing, stop-go driving, this great new oil effectively fights sludge, acids, rust. It helps keep rings and valve springs clean and working smoothly—helps keep engine performance at peak efficiency for longer periods of time and with less oil consumption!

If your fleet's engines are going into the shop too often and without giving the mileage they should, talk to your Gulf Sales Engineer. He

will show you how GULFLUBE MOTOR OIL X.H.D. can greatly reduce your maintenance costs. Chances are you'll begin to see results in a few weeks when you switch your fleet over to GULFLUBE MOTOR OIL X.H.D.

Gulf Oil Corporation—Gulf Refining Company
719 Gulf Building, Pittsburgh 30, Pa.

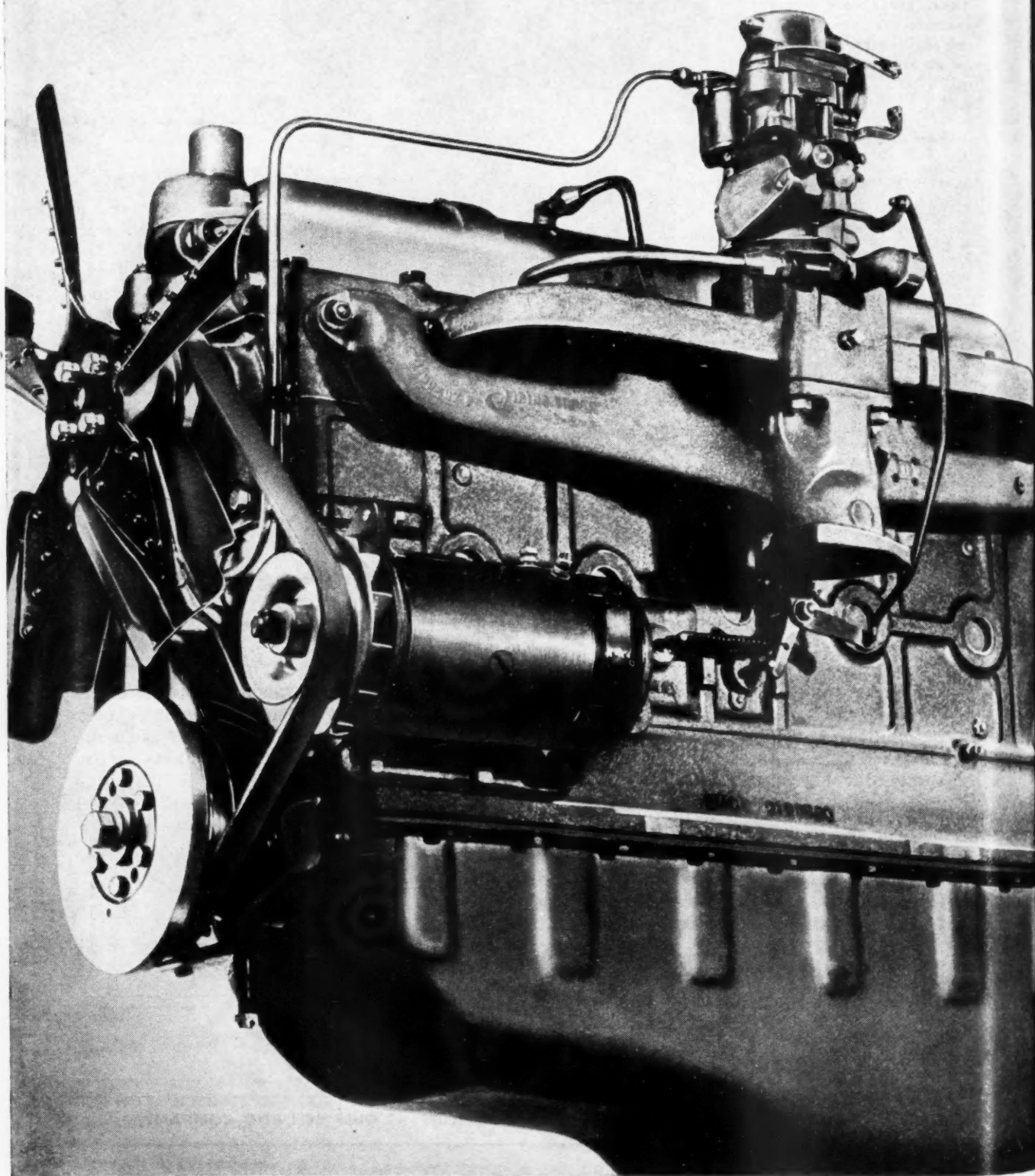
Please send me, without obligation, a copy of your new brochure, "Gulflube Motor Oil X.H.D."

Name _____
Company _____
Title _____
Address _____



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Haul up to 500 pounds more pay



Enter General Motors \$194,000 Better Highways Contest. See your GMC Dealer for contest blanks and full information.

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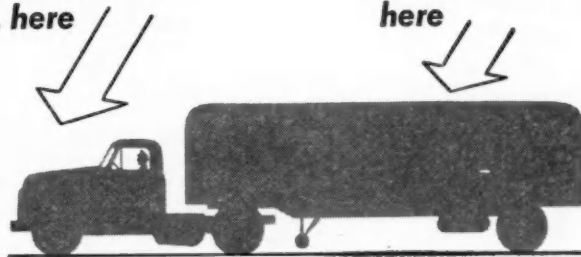
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ore payload in your present trucks

GMC's new "302" Replacement Engine eliminates as much as 500 lbs. here

Lets you haul up to 500 lbs. more profit-making cargo here



NOW you can repower every 19,500—21,000 GVW truck and 35,000—45,000 GCW tractor in your fleet to haul as much as 500 *extra* pounds of payload every trip—and to do it without violating legal limits.

The new shop technique that makes this possible is a simple one: Install GMC's sensational new 145 H.P. "302" Replacement Engine every time any truck with a work-weary engine limps in for overhaul.

You'll not only slash your "down time" and shop costs to a new low, *but you'll put back on the road trucks that cost less to run and trucks that put extra payload dollars in your pocket.*

That's now possible because the "302" Replacement Engine weighs as much as 500 lbs. *less* than other engines of equal horsepower. Pound-for-

pound, it's the mightiest power plant in trucking history.

It burns regular gasoline under a record 7.2 compression to wring extra ton-miles—and extra profits—from every gallon you put in the tank.

But, you say, a super-engine like this must cost a pretty penny.

That's why the price tag on the new GMC "302" carries the biggest—and best—news of all. Fact is, it costs you no more than engines it far outstrips. And it completely repowers a truck for surprisingly few dollars.

The "302" is only one of 9 great Replacement Engines—6 gasoline and 3 Diesel models covering the 100 to 225 H.P. range. To get the whole story on any of them, just mail us the coupon below. Or better still, see your own GMC dealer!



—best part of any service job!

GMC Truck & Coach Division of General Motors

GMC TRUCK & COACH DIVISION
General Motors Corporation
Parts and Service Replacement Engine Department
660 South Boulevard, East, Pontiac 11, Michigan
Gentlemen:

Please send all the facts on GMC's complete line of Replacement Engines.

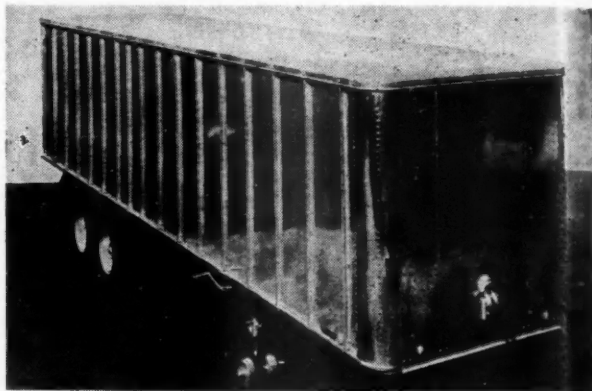
Name

Company

Address City State

My truck is a (Make) Model

Fruehauf Announces Exposed Post Trailer



DESIGNED for operators who require a light weight trailer that can handle heavy duty hauls ordinarily assigned to heavier steel trailers, a new model, exposed post aluminum van trailer has been announced by Fruehauf Trailer Co., Detroit.

The new trailer has smooth front and rear panels making it easier to paint and also reducing wind resistance. The front corners have been designed with a 10-in. radius for closer coupling and for greater trailer length giving increased payloads.

The roof structure, selected for its leak protection advantages, is semi-floating with coin pressed seams. The flooring is Fruehauf's Tuf-Lite extruded aluminum type giving further weight reduction.

A new feature of the Fruehauf Car-A-Van is the full width, steel coupler

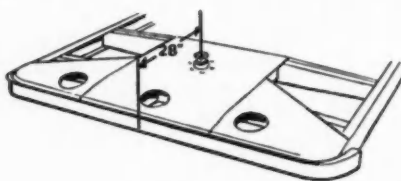


plate with a 28-in. king pin location for the added capacity resulting from the longer length.

Cross members are offered in two choices, either deep die formed steel or aluminum, depending upon loading conditions and requirements. The rear doors are triple sealed with double flange gaskets to insure moisture pro-

tection and better temperature control with reefer models. The rear door drip molding and header is of one piece, extruded aluminum construction for additional weather protection and greater head room.

Maximum support without extra weight is obtained by extending the sub frame rails for the full length of the unit. Tough, low level center dock bumpers provide top body protection during loading and unloading.

The exposed post van design is said to achieve heavy duty qualities and at the same time take full advantage of the weight saving advantages of aluminum. Economy and ease of repair and maintenance are also claimed by the manufacturer.

Garbage Body Changes to Salt Spreader



Before

A COMPLETE hydraulic salt spreader and snow plow has been built by the Bureau of Equipment Service, Department of Streets and Electricity, City of Chicago, starting with an obsolete garbage truck.

In converting the old refuse collection truck to its new use, the Bureau's shop, in addition to using the old chas-



After

sis, utilized approximately 40 per cent of the sheet steel and 30 per cent of the structural channels from the old body. The hoist cylinders, pump, conveyor motor, speed reducer, power take-off and operating valves were salvaged as replacement parts for the rest of the refuse collection fleet.

The V-type design body has a capac-

ity of 11 cu yd of salt and sand mixed. In actual operation it has been found that a spread from 20 to 80 ft can be made, with one load covering approximately 4½ miles of pavement.

The Bureau claims that the spreader is able to do three times the amount of work secured from other spreaders with only about 10 per cent of the previous maintenance cost.

Incorporated in the rear spreading mechanism are two side deflectors which are operated by air brake chambers controlled by separate levers in the cab. They are used to divert the flow of abrasive to the ground while passing parked cars or pedestrians.

A spring loaded relief door in the back panel of the body above the feed slot is adjusted so that, whenever the conveyor becomes jammed by bricks, large lumps or other material that will not pass through the feed slot, the door opens permitting automatic clearing without damage to the conveyor or drive unit. A grate unit within the body prevents objects too large to pass through the door from falling on the conveyor.